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Million In Pulpwood Saved After Storm

PORT ARTHUR, Ont. — More than $1 million worth of pulpwood and sawlogs, loosened from booms in heavy mid-week rainstorms in this district, were being gathered successfully last week. Officials of timber companies hardest hit by the breaks said they were confident losses would be much less than anticipated.

H. P. Klinestiver, manager of the Woodlands section of the Marathon Paper Mills of Canada which lost about 50,000 cords two days previously, said that 95 percent of the logs have been rounded up. He said one of the large company tugs, the Peninsula, has 30,000 to 40,000 cords of pulpwood in tow, one of the largest booms in the history of Lake Superior. Another tug has 10,000 cords under control.

Mr. Klinestiver said Marathon camps in the district were out of any danger from flooding with the exception of one unused camp, No. 37, twenty miles up the Big Pic River where water has reached the eaves of buildings.

Losses of the Pigeon Timber Company, another big Lakehead concern, were not revealed, but Earl Hunt, Fort William, Ont., manager, said everything was under control at the company's operations on the Little Pic River, where raging waters broke log booms and sent pulpwood and sawlogs racing down the river. Mr. Hunt said the loss was much less than Marathon's.

Western SAPEYES Plan Three Golf Tournaments

CHICAGO — Lennox Ransom, chairman of the SAPI's western division golf committee, has announced that three golf tournaments will be held during the remainder of the season. The first will be held at the Briergate Country Club on Friday, July 18; the second on August 8 at Medinah Country Club and the third at Olympia Fields on September 16. Ransom reported that the advance listing of dates would make it possible to invite out-of-town customers and, in general, to insure the division of better attendance at outings. The western division has also announced a plan of requesting advance contributions of $3 per member ($1 for each outing) to enable the golf committee to finance its operations. In addition, each member actually attending will pay the regular fee covering green fees and dinner.

Holyoke Wage Adjustments Add Half-Million to Labor Cost

Mexico Acts to Spur Paper Mill Development

WASHINGTON—As a stimulus to its new paper mill development, a Mexican decree has exempted forestry concessions made to two new paper mills in Mexico, from a general prohibition against exploitation. The Mexican government banned exploitation of certain forest areas after it was claimed excessive cutting had affected rainfall and climate on the central plateau.

McCabe is Made an LLD

PHILADELPHIA—Thomas B. McCabe, president of the Scott Paper Company, was awarded the honorary degree of Doctor of Laws at the Swarthmore College commencement exercises last week. Mr. McCabe is an alumnus of Swarthmore and a resident of the borough. The degree was presented to him by Scott B. Lilly, chairman of the division of engineering at Swarthmore, who said of Mr. McCabe, "He is a successful industrialist and financier and a distinguished humanitarian. He is a most illustrious alumnus of Swarthmore."

Y. S. CHANDARI, general manager of the U.I.C. Paper Mills at Lucknow, India, visiting in this country, chats with W. E. BRAWN, TAPPI President, at Poland Springs.

HOLYOKE, Mass.—Acceptance of a general ten-cent hourly wage increase by Local 226 of the International Brotherhood of Papermakers brings contract negotiations in the local paper industry to a peaceful conclusion, and adds between $400,000 and $500,000 a year to purchasing power in the Holyoke district. Local 226 voted acceptance by a large majority this week.

Besides the wage raise, the principal new feature of the renewed contract will be a sickness and accident group insurance program. It has been agreed that the companies will set up such a program, to be paid for on approximately a 50-50 basis by employers and employes. Male workers would receive $20 a week for not more than 14 weeks when absent through sickness or non-occupational injury. Occupational injuries are covered by workmen's compensation. Benefit payments begin on the eighth day of absence. Cost to employes would be about 20 cents a week for men, and 16 to 17 cents for women.

The increase raises the minimum for common labor, such as platform help, to 89½ cents an hour. The base rate for the majority of machine tenders, who operate the equipment that transforms the pulp into paper, is raised to $1.37½ an hour. A small number of machine-tenders are raised to $1.40 an hour, the maximum. On top of this base rate, workers get a shift premium of four cents an hour for the second shift, and six cents for the third. The papermakers rotate shifts, so that this premium means an additional hourly rate of three and a third cents. Thus the new rate of the majority of machine tenders will average close to $1.41 an hour.

The new contract calls for pay for six workless holidays, the same as the old contract. A new schedule of vacation pay has been agreed upon. The amount to be paid per week of vacation will be the average week's earnings of the worker at straight time during the previous contract year, subject to a minimum and maximum. For the employes who have worked one year or 1600 hours and who are entitled to one week's paid vacation, the minimum is 40 hours and the maximum 48. For five-year employes, entitled to two weeks' paid vacation, the minimum is 80 and the maximum 96.

Waxed Paper Group Meets in Canada

HAMILTON, Ont. — Continued cooperation between waxed paper manufacturers of the United States and Canada was pledged at the summer meeting of the Waxed Paper Institute, Inc., which was held at Hamilton earlier this month. During the two-day session strong representative groups of major waxed paper companies of both countries exchanged ideas on mutual problems and questions.

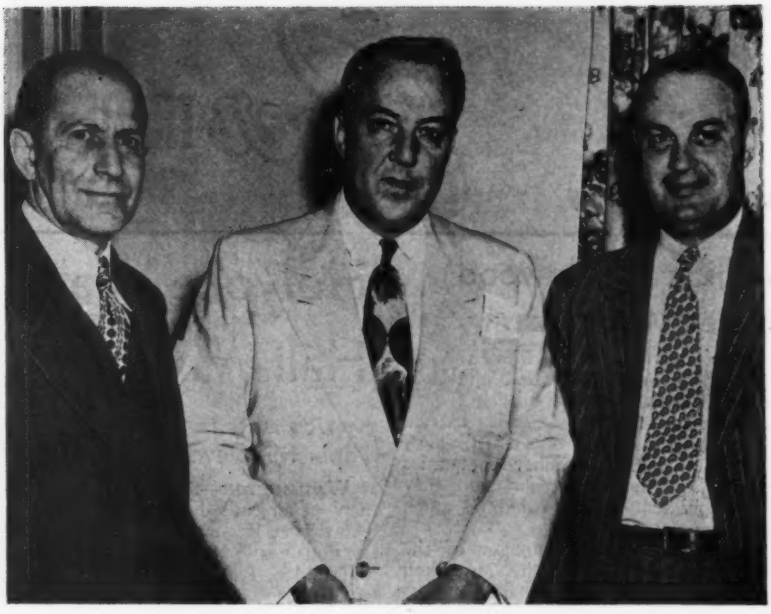
Samuel Lawrence, mayor of Hamilton; C. C. Morin, chairman of the Canadian Manufacturers, Hamilton and Bradford; T. H. Simpson, K.C., president of Hamilton Chamber of Commerce; and Hon. Russell T. Kelley, Minister of Health, Ontario, were guest speakers at the meeting. George C. Clark, president of Appleford Paper Products, Ltd., Hamilton, was the official host. Karl R. Zimmer, president of Zimmer Paper Products, Indianapolis, chairman of executive committee, presided at the two-day meeting.

First on the agenda of the business session was a report of the Institute's National Merchandising Program by Chairman Harold L. Bills, Saniwax Paper Co., Kalamazoo, Mich. He reported the progress of this year's program, and then presented an accelerated promotional program for the coming year.

To assist Mr. Bills with the new, stepped-up program, three new members were added to his committee to represent the three major divisions of the industry — bakery, specialty and household roll. They are John H. Snyder, Marathon Corporation, Menasha, Wis., to represent the Baker Division; Glenn Stewart, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich., the Specialty Division; and C. F. O'Connor, B-F-D Company, New York, the Household Roll Division.

Thomas A. Sullivan, H. P. Smith Paper Company, Chicago, Ill., chairman of the Institute's Industrial Relations Committee, lead a panel discussion on that important subject, and stressed the need for a program of telling to the worker the story of industry from a management point of view. Others who participated in the discussion were Maynard Bartley, Rapidwax Paper Company, Minneapolis, Minn.; Robert Huston, Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.; and G. R. Schenk, Riegel Paper Corporation, New York.

W. P. Paterson, Specialty Papers Company, Dayton, Ohio, chairman of the Statistical Committee, reported a marked increase in the number of participating companies in the statistical program. In his report he presented new charts, typical of those which are to be included with monthly summerizations hereafter to help illustrate more effectively the trends in all product divisions.



Continued cooperation between waxed paper manufacturers of the United States and Canada was pledged at the summer meeting of the Waxed Paper Institute, Inc., which was held at Hamilton, Ont. A. H. Noelke, secretary-treasurer of the Waxed Paper Institute, and Karl R. Zimmer, President of Zimmer Paper Products, Indianapolis, chairman of the Executive Committee, pose with George Clark, President of Appleford Paper Products, Ltd., Hamilton, who was the official host.

E. P. Gehrhart, Central Waxed Paper Company, Chicago, chairman of the new Traffic Committee, stressed the value of cooperation and explained that action of traffic men within this industry can affect appreciable savings for all member companies.

A. H. Noelke, secretary-treasurer, through a progress report portrayed the strong position now enjoyed by the Waxed Paper Institute in the food and packaging fields.

George P. Lamb, legal counsel for the Institute, gave an address on sound business practices for waxed paper manufacturers in a buyer's market.

Lithographers Elect Hall At Saranac Meeting

SARANAC, N. Y.—At the 42nd Annual Convention of the Lithographers National Association held at Saranac Inn, N. Y., George W. Hall, president of the Western Lithograph Co., Los Angeles, Calif., was elected President of the Association for the next year. Randolph T. Ode, president of Providence Lithograp Co., Providence, R. I., was elected Vice-President of the L. N. A. Other officers of the Association continuing to serve include Maurice Saunders, Chairman of the Board, George C. Kindrew, Treasurer; W. Floyd Maxwell, Executive Director; and Edward D. Morris, Secretary.

Morris C. Dobrow, Executive Secretary of the Writing Paper Manufacturers Assn., held forth the promise that the fourth quarter of this year would see most kinds of printing paper in reasonable supply. George S. Dively, Vice President and General Manager of the Harris-Seybold Co., covered the printing equipment supply situation as reported by companies producing over half of this type of equipment. Production, he said, is now 200% of prewar normal with equal quality. Delivery dates will increasingly get better.

Wisconsin Company Reservoirs Filled To Near Capacity

WAUSAU, Wis. — Reservoirs of the Wisconsin Valley Improvement Company were filled to 93.72 percent of their total capacity on Sunday, June 15. A gain of 176,000,000 cubic feet was reported for the week in the total storage, which on June 15 was 15,950,000,000 cubic feet as compared to 16,214,000,000 cubic feet on the same date in 1945 and 12,096,000,000 cubic feet on the same date a year ago.

Stein Hall Promotes Arnold in Chicago

NEW YORK—Stein, Hall & Company, Inc., importers and manufacturers of industrial raw materials, has appointed Kenneth Arnold manager of the Chicago sales branch office. Mr. Arnold has been associated with Stein, Hall & Company, Inc., since 1933 and for the past twelve months as assistant manager of the Chicago office.

Oscar Westerlund who has been associated with the company for mahy years in Chicago will continue as assistant manager of the Chicago branch.

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Thilmany Plans Power Plant Additions

KAUKAUNA, Wis. — Thilmany Pulp and Paper Company has completed plans for a new two and three story addition to the power plant at the mill, 40 by 60 feet, and construction is scheduled to begin in April, 1948. A constantly increasing demand for power prompted the decision.

The company has contracted for all its electric power from the city up to the capacity of the city to supply it, according to Charles Seaborne, vice-president of the company. The city is expanding its facilities at Little Chute, and that will make a considerable block of power available, but at the same time the city of Kaukauna is increasing its own use of power.

"The company in looking ahead can see the day when it will need power beyond the generating capacities of the city, and is putting its house in order for that day," Seaborne said. "The new technological advances in steam power require higher steam pressures. Steam is now being generated at 200 pounds per square inch. The new plant will operate at 600 pounds per square inch and the first unit that goes into service about next June will deliver 100,000 pounds per hour. It will be able to produce steam for the new paper machine and still drive a 4,000 kilowatt turbine."

Seventy percent of all the mill's power comes from the city of Kaukauna. The mill's increase in KWH per employe since 1926 is listed by Mr. Seaborne as 148 percent.

As the plans for the new addition now stand, the main boiler room will be raised 20 feet. The two old boilers will be removed and the present building will be extended west to occupy the expansion setup which means the installation of equipment for increased capacity.

The building contract has been awarded to the Permanent Construction Company of Milwaukee, and Pfeifer and Schultz of Minneapolis are the consulting engineers.

Crittenton Tells Foremen Enthusiasm Must be Created

KIMBERLY, Wis.—Louis A. Crittenton, representing the National Association of Foremen, was the principal speaker at the meeting of the Kimberly Foremen's club of Kimberly-Clark Corporation June 17, at the Kimberly clubhouse.

Discussing "The Lights Ahead are All Green," Crittenton said that "one of the most important products in any plant is the kind of men and women that are developed and the manner in which they work together. There are three 'C's,' conference, confidence and cooperation. Enthusiasm is life's top value. In order to have enthusiasm you must create it."

Seventy persons attended the meeting, which was followed by a 5:30 dinner. William J. McDonald was elected president of the club; Carl A. Krenkel, vice-president; C. R. Laut, secretary; and Thomas M. Ryan, treasurer.

Alaska Pulp Waits on Indian Claims Legislation

WASHINGTON — A start in opening Alaskan forests to the pulp and paper industry, it has been discovered, may have to wait another year unless Congress acts swiftly on pending legislation nullifying the effect of Indian claims to Government timberlands.

Contracts for auction sale of timber cutting rights are ready. The U. S. Forest Service has circulated advance copies of its sale prospectus and is ready to advertise some 1,500,000,000 cubic feet of pulp timber. Of five or six concerns that have indicated substantial interest in opening pulp or paper mills in Southeast Alaska, at least one is said to be anxious to start surveying this summer.

Holding it up is the long dormant and somewhat unexpected emergence of claims on the Tongass timber reserves by Coast Indians, salt water fishermen by occupation. Legal counsel for the Indian villagers has held up consideration of H. J. Res. 205 by two Congressional committees in order to consult his clients, now fishing in the North Pacific. Congress adjourns for the year on July 30.

The Indians claim ownership to the timberlands on the grounds that sale of Alaska by Russia to the United States eighty years ago transferred only sovereignty, not ownership, of the Territory.

Plant and Fire Protection Subject of Safety Council

MENASHA, Wis.—"Plant Protection and Fire Protection" were discussed by L. B. Schommer and Clarence Schroeder of Marathon Corporation at the last monthly meeting of the season of the Twin City Safety Council for foremen and supervisors. The meeting was held June 18 at Germania hall.

Schommer is the staff head of plant protection for all Marathon Corporation properties. While serving in the armed forces he was cited for having the best record in fire and property protection for the Sixth Corps Area. Schroeder also has had experience in fire protection, serving with the navy on fire boats. More than 60 foremen and supervisors attended the meeting.

Dominion Corrugated Doubles Space

TORONTO — Dominion Corrugated Paper, Toronto, are doubling their manufacturing space with a building of 23,500 square feet, one story and basement, concrete, steel and brick. The new addition is scheduled for completion in September. The estimated cost is about $50,000. The company presently employs 35 people, which will be augmented to an as yet undetermined extent.

Newsprint Corp. Plans Gary De-Inking Plant

CHICAGO — Gary, forty miles from the heart of Chicago, is to have a newsprint renewal mill according to Cooke Coen, Chicago cost analyst and co-founder of Newsprint Corporation, the firm which will operate reclaiming mills not only in Gary but in four or five other points where waste paper dealers have assured the company of adequate supplies.

Newsprint Corp. was founded by Coen and Frank G. Buffum, well known Chicago business man. It has, say reports, been given exclusive rights to a new de-inking process under license from the American Industrial Company which will build the mills and supply the de-inking equipment and also receive a small royalty on each pound of paper turned out under the new process. Newspapers are expected to be asked to participate in stock ownership of the company for it is reported that they will jointly contract to take the entire output of the new mills.

The Gary plant process will follow closely the operation of a mill now producing in Saugerties, N. Y., where the de-inking process is already being used. The Saugerties operation will be entirely separate from the mill operations of the four or five plants described above. Newspaper co-owners in New York are from Dayton, Ohio, Indianapolis, St. Louis and the Fairchild Publications, who publish retail trade papers.

The Gary mill, Coen is reported to have said, will be 80 by 400 feet in size and capable of turning out 80 tons of de-inked newsprint a day. The Gary mill and at least three others are expected to be in operation by January 1, turning out reclaimed newsprint at a rate of 100,000 tons annually. These will be permanent mills, useful for supplementing regular contract supplies and their success is predicted, based on the increased demands as compared to the decrease in the supply of pulp available for newsprint.

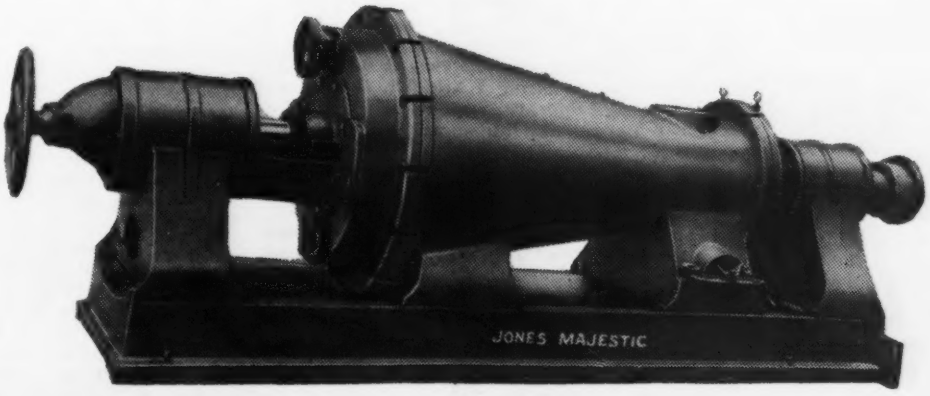
As for the process itself, American Industrial Company declares it makes a definite improvement over the hot water system of de-inking newspapers. F. B. Oldham, president, has indicated that the process employs cold water so that there is a processing loss of only 10 percent at the most, largely in short fibers and ink, as compared to losses of a third or more under the other system.

Bischoff Returns from Havana

ROCKVILLE CENTER, N. Y. — L. Bischoff of the Nasko Machinery Sales & Service Company has just returned from a two-weeks' stay in Havana, Cuba. He very successfully printed on one of their Wolverine Aniline Roll Presses transparent material with a newly developed aniline ink for tropical climate.

"An old Jordan was reborn"

Accuracy of Jordan construction is vitally important, but it's the Filling that makes the combination produce satisfactory refining results. Jones *Engineered* Fillings are built for the job to be done. Our experience proves that even in good Jordans, improperly designed fillings greatly reduce efficiency and quality of paper product. In one mill, just by a change of Filling, with Jones' "know-how" in Filling design, the Jordan was given new life, doing the work of three other Jordans in the same mill. That's why we say, "It's the Filling in the Jordan that makes the overall engine really efficient and effective". That's why, too, the Jones Jordan with its Jones Filling is a good combination that effects satisfactory, desired results for varied refining operations.



Jones

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Builders of Quality Machinery for Paper Mills

Manufacturers and Distributors in Canada: Waterous Ltd., Brantford, Ont.

Container Demand Jumps in Indiana

INDIANAPOLIS — Little change was seen last week in the paper market in this area, though some expressed the belief that demand in some lines was down just a trifle. However, supplies are strictly limited and it would take a considerable slump to enable the manufacturers and jobbers to catch up with their orders.

With the coming of summer demand for containers for the dairy and ice cream trade showed a sharp increase. Dairymen, before the war, were going for the square waxed paper container for milk and cream in a big way, but with paper short, they were compelled to switch back to the glass container to a great extent. There is little doubt that when the paper container becomes available in quantities the switch will be the other way.

Building paper and roofing demand jumped the last week with building operations, which were halted to a large extent by the carpenters' strike, getting back in operations. Most of the local jobbers have sufficient stocks to take care of demand until the fall season and by that time expect that supplies will be more plentiful. Prices are strong at this time.

Box and container factories in this section are operating practically to capacity, but are plagued by lack of raw materials. Their orders are large and for a wide variety of boxes and the help situation has improved. But in some instances they are compelled to curtail production because of limited raw materials.

Tissue demand continued heavy last week with prices high and supplies scarce. However, jobbers report some easing in the supply situation and are hoping for further aid in this respect. It seems that toilet tissues are scarcer than other grades.

Waste paper demand appeared steady, but not in the same volume it was a month or so ago. Heavy spring collections have enabled jobbers here to get some stocks in their warehouses. Prices continued strong, however. The rag situation was unchanged.

W. H. Smith Paper Negotiates Warehouse Title

ALBANY, N. Y.—W. H. Smith Paper Corp. has completed negotiations for acquiring title to a four-story concrete warehouse occupying the block bounded by Church St. and Dongan Ave. The structure was purchased from Thomas R. Ward, liquidator of the former firm of Wiedman-Ward and the new owners plan occupancy in 1951 when a lease held by Montgomery-Ward expires. The property is reported to be valued at $130,000. The printing paper distributing firm now carries on its business at Hudson Avenue and at Broadway.

Confidence Keynotes Baldwin Convention

NEW YORK—The traditional annual convention of the Salesmen of the Baldwin Paper Company, Inc., was held at the Advertising Club, New York, Thursday, June 12. After a delightful luncheon Toastmaster W. F. Vallely, Baldwin vice-president, summed up the seriousness of present paper conditions and then invited the salesmen to "let their hair down" in a free-for-all open discussion.

Addresses were made by Bernie Blausen, Sidney Holland and Henry Himmell, vice-presidents, and George Greene, secretary. Most all of Baldwin's twenty-four salesmen participated in a serious discussion of the scarcity of paper and how best to cooperate with their accounts during this critical situation.

Samuel S. Himmell, Baldwin president, closed the meeting on a high note of optimism and confidence, declaring "we have been holding these annual conventions for the past fifteen years, but for seriousness and confidence, this one tops them all."

West Virginia Names Troubs Chemical Coordinator

COHOES, N. Y. — Dimitry S. Troubs has been appointed coordinator of manufacturing operations of the industrial chemical sales division of the West Virginia Pulp & Paper Co. He has been with the firm since 1924 and will direct the chemical manufacturing operations of the concern's several branches, including the plant at Mechanicville. Troubs was graduated from the Imperial Russian Naval Academy in 1912 and came to this country during World War I to serve as technical assistant in the Navy Bureau of Ordinance.

International Names Cary To Conservation Post

CAMDEN, Ark. — Rex B. Cary has been transferred to the Camden office of the International Paper Company Forestry Department as conservation engineer. He has been with the company since returning from the army, and formerly worked for the United States Forest Service and United States Parks Service.

Chicago Waste Steady Prepare For Shutdowns

CHICAGO — Waste paper in the Chicago paper market was steady this week with mills reported paying $16 a ton for No. 1 mixed, $20 for No. 1 news and $30 for No. 1 old corrugated. Preparations are being made for summer shutdowns in various mills in this area and dealers and brokers are moving cautiously in the face of this seasonal factor. Shutdowns are expected to begin around July 1 but dealers and brokers are hoping that the market will be well maintained during the time the mills are closed.

Canada's Pulp Paper Reach $163 Million

MONTREAL—In the first four months of 1947 Canada's forest industries produced virtually a third of Canada's total exports. Evidence of her dependence on the forest industries—pulp and paper in particular—is provided by the fact that out of a $788 million total approximately 21 percent of exports for the first four months were pulp and paper.

Total exports of forest products at $260 millions exceeded all agricultural and vegetable products at $179 millions. This latter figure is only 9 percent greater than total pulp and paper exports alone. Pulp exports were $52.7 millions; newsprint totaled $101.9 millions and other papers and board amounted to $8.6 millions—a total of $163.2 millions.

On an annual basis, the pulp and paper industry is now exporting at the rate of $490 millions. On the assumption that 70 percent of pulp and paper products are exported, production is indicated at the rate of $650 millions a year. Exports of pulp and paper by classification are roughly: pulp, $158 millions; newsprint, $306 millions; other papers and board, $25 millions.

Acres of Diamonds Urges Reforestation

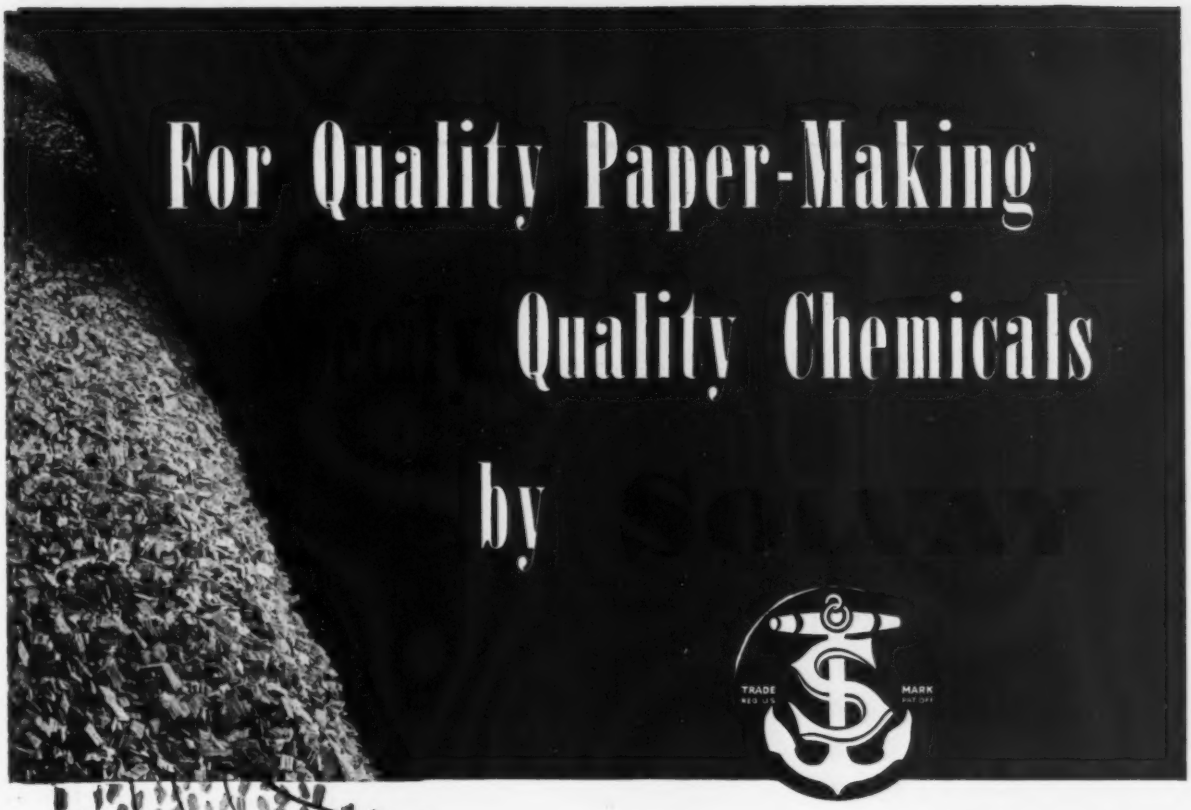
APPLETON, Wis. — "Acres of Diamonds" is the title of an article in the June issue of the *North Western Newsliner*, publication of the Chicago & North Western Railway System. It was written by W. A. Kluender, forestry agent of the road, and concerns the railway's development of a 250-acre forestry laboratory and demonstration tract at Spooner, Wis., adjacent to the University of Wisconsin Experimental farm, and the part the road took in the Forestry Field Day last spring.

The article states that the road "is encouraging and lending its efforts to the successful reforestation of land better suited to trees than to agriculture" and working to help assure a future supply of raw materials to pulp and paper mills and other wood-using industries. It describes the use of tree-planting machines, and stresses the need for an assured and constant supply of forest products. The article is profusely illustrated.

Kimberly-Clark Increases Niagara, Kimberly Wages

KIMBERLY, Wis. — Employes of the Kimberly and Niagaga, Wis., mills of Kimberly-Clark Corporation have been granted a 5-cent hourly wage increase, retroactive to June 9, according to George Truscott, Kimberly, president of the Papermill Workers Union. He added that the increase at the two mills now totals 35 cents per hour since V-J Day.

For Quality Paper-Making Quality Chemicals by Solvay



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FINANCE

Clopay Refinancing To Acquire Plant

CINCINNATI—The Clopay Corporation last week was planning to sell publicly 200,000 shares of $1 par value common stock, of which 35,000 shares were to be sold by the company and the remainder by present shareholders.

The corporation plans to use proceeds from the sale of the 35,000 shares, along with funds obtained from a $1,200,000 ten-year 3 per cent bank loan obtained from the First National Bank of Cincinnati and other corporate funds, for these purposes:

1. Pay balance of existing term bank loan from the First National Bank of Cincinnati;
2. Retire all outstanding Closed Mortgage 4 per cent Registered Serial Bonds;
3. Cancel mortgage indebtedness to the Fifth Third Union Trust Company of Cincinnati;
4. Purchase for retirement all outstanding 2,532 shares of Class B Common stock of the company, and
5. Acquire the plant property at Elmwood Place, Ohio.

It was believed in the Cincinnati financial district that the new issue would reach the market this week.

The dividend rate is expected to be 70 cents a share. Application to list the stock on the New York Stock Exchange, is to be made, the preliminary prospectus stated.

The refinancing program will reduce fixed charges from $98,434 to $36,000 annually, it was explained.

A group of Cincinnati houses headed by Pierce, Fenner & Beane will be the underwriters.

It is estimated that Clopay does 20 to 30 per cent of dollar volume of business in the paper drape and curtain field. In the garment storage bag field the company is believed to provide 45 to 55 per cent of the total dollar volume.

Other activities include venetian blinds, hanger protectors, table covering materials and processing of paper for other industrial users.

Paper window shades accounted for 48.38 per cent of the company's $10,688,808 net sales in 1946. Paper drapes and curtains were next with 36.64 per cent, the remainder being distributed among venetian blinds and other products.

On April 3 of this year Clopay entered into an agreement with Duresco Products, Ltd., and English company, granting that concern manufacturing rights outside this country. Clopay will receive 5 per cent of the net selling price received by Duresco, it was reported.

(Continued on page 16)

Dexter Seeks Reduction In Its Assessments

WATERTOWN, N. Y.—Attorney Frank A. Schmidt will soon open on certiorari proceedings instituted by the Dexter Sulphite Pulp & Paper Company to compel reduction of real property assessments for tax purposes on 35 separate parcels which go to make up the holdings of the company.

Of these parcels 23 are tenant houses in the village of Dexter, five are lots upon which the buildings have been razed and seven are mill parcels.

The total assessments against the property of the company were: $781,250 in 1943, $779,600 in 1944; $766,400 in 1945 and $694,250 in 1946.

The fair and reasonable valuation claimed by the company would have been either $383,825 or $483,755 in 1943; $364,675 in 1944; $349,075 in 1945 and $224,875 in 1946.

The proceedings have been instituted through the four years and have been allowed to accumulate undetermined until the present time.

Canadian Wallpaper Profits Show Increase

TORONTO — Canadian Wallpapers Manufacturers' net profits were 5.57 percent higher at $195,395 in the fiscal year ended April 30, 1947, after charging $100,000 as a reserve for contingencies for expansion and development. Trading operations of subsidiaries have been satisfactory, despite the fact that paper and other raw materials still continue to be in short supply. President Arnold Ashton states that the present indications are that there will be little improvement, if any, in the supply situation during the current year.

The color department has been converted into a separate legal entity and is now trading under the title, Dominion Colour Corp., all shares of which are held by principal subsidiary companies. New buildings are under erection at New Toronto, Ont., and is expected that the plant will be in operation within six months.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending June 21, 1947

STOCKS

	High	Low	Last
A. P. W.	4⅛	3⅝	4⅛
Armstrong Cork Co.	43½	42½	43¼
Armstrong Cork Co., pf.	104	104	104
Celotex Corp.	24¼	23	24¼
Celotex Corp., pf.	20¼	20⅛	20⅛
Certain-Teed Products Corp.	15⅞	13¾	15½
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	23¼	22¼	23
Champion Paper & Fibre Co., pf.	105½	105¼	105½
Congoleum Nairn Co.	26¾	26	26½
Container Corp. of America	40¾	38	40½
Crown Zellerbach Co.	29¼	28¼	29
Crown Zellerbach Co., pf. 4.20	103½	102½	102½
Crown Zellerbach Co., 4 pf. 4	113½	112⅜	113½
Dixie Cup Co.	27½	26	27½
Dixie Cup Co., A	51	50	50
Flintkote Co.	30½	28⅝	29⅜
Flintkote Co., pf.	107	107	107
Robert Gair	7⅜	6¾	7⅜
Robert Gair, pf.	....	....	....
International Paper Co.	47½	44⅜	47½
International Paper Co., pf.	104	104	104
Johns Manville Corp.	44½	41½	44½
Johns Manville Corp., pf.	120	117	120
Kimberly-Clark Corp.	23¾	22¾	23¾
Kimberly-Clark Corp., pf.	107¾	106½	107¾
Mac Andrews & Forbes	34½	34	34½
Mac Andrews & Forbes, pf.	....	....	....
Marathon Corp.	24¾	22¼	23¾
Mead Corp.	18⅝	18	18¼
Mead Corp., pf. 4¼	....	....	....
Mead Corp., pf. 2	45	44¼	44¼
National Container Corp.	39	37½	39
Paraffine Companies, Inc.	67	64	64
Paraffine Companies, Inc., pf.	108	108	108
Rayonier, Inc.	21⅞	21	21⅞
Rayonier, Inc., pf.	37	36⅞	37
Ruberoid Co.	49	46	49
Scott Paper Co.	45	44	44¾
Scott Paper Co., pf.	100	100	100
Sutherland Paper Co.	39¼	39	39¼
Union Bag & Paper Corp.	32	31	31⅞
United Paperboard Co.	14½	14	14⅜
U. S. Gypsum Co.	101¼	99½	100½
U. S. Gypsum Co., pf.	99⅜	99	99
West Virginia Pulp & Paper Co.	40¾	39½	40¾
West Virginia Pulp & Paper Co., pf.	111	110½	111

BONDS

Abitibi Pulp & Paper Co., 5s '53	....	....	....
Celotex Corp., 3¼s '60	....	....	....
Certain-Teed Products Corp., 5½s '53	....	....	....
Champion Paper & Fibre Co., 3s '65	103⅜	103¼	103⅜
Mead Corp., 3s '66	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending June 21, 1947

STOCKS

	High	Low	Last
Great Northern Paper Co.	42¼	41¼	41⅝
St. Regis Paper Co.	....	....	....
Taggart Corp.	....	....	....

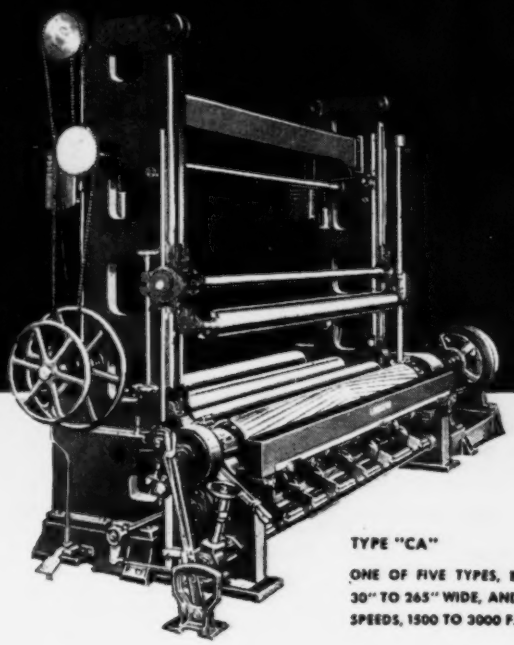
BONDS

American Writing Paper Co., 6s '61	....	....	....

HELICAL NITRIDED STEEL GEARS ARE NOW USED IN THE DRIVE TRAIN OF LANGSTON WINDERS, COMBINING A MORE SILENT DRIVE WITH GLASS HARD GEARS HAVING AT THE SAME TIME A TOUGH CENTER. THE GEARS DRIVING THE TOP IDLER ROLL ARE NOW SPIRAL BEVEL GEARS RUNNING IN AN OIL-FILLED CASE.

THESE AND OTHER IMPROVEMENTS, MAKE LANGSTON SLITTERS AND ROLL WINDERS EVEN BETTER QUALIFIED TO MEET EVERY REQUIREMENT IN THE MILL, FINISHING ROOM OR CONVERTING PLANT.

SAMUEL M. LANGSTON COMPANY, CAMDEN, N. J.



TYPE "CA"

ONE OF FIVE TYPES, BUILT 30" TO 265" WIDE, AND UP. SPEEDS, 1500 TO 3000 F.P.M.

LANGSTON

A CLEAN CUT | A SHEAR C

SLITTERS AND ROLL WINDERS

Congress Buys Paper For Third Quarter

WASHINGTON—Awards were made on Monday by the Joint Congressional Committee on Printing for paper for use of the Government Printing Office for the three months period beginning July 1, 1947. Bids for the paper were received on June 16. The awards are as follows, reference in each case being to members as assigned to each item by the committee. Only those items on which bids were accepted have been listed.

No. 3, Mudge Paper Co., 10.71 cents (100,000 pounds).

No. 4, Barton, Duer & Koch Paper Co., 10.43 cents (75,000 pounds); Mudge Paper Co., 10.71 cents (100,000 pounds).

No. 5, Mudge Paper Co., 10.71 cents (50,000 pounds).

No. 7, Mudge Paper Co., 9.87 cents.

No. 8, Mudge Paper Co., 9.87 cents.

No. 18, Mead Sales Co., 9.56 cents.

No. 22, Mead Sales Co., 9.56 cents.

No. 33, R. P. Andrews Paper Co., 9.38 cents (200,000 pounds).

No. 37, Barton, Duer & Koch Paper Co., 11.07 cents.

No. 39, Barton, Duer & Koch Paper Co., 9.96 cents; 9.27 cents.

No. 40, Consolidated Water Power Paper Co., 10.254 cents.

No. 50, R. P. Andrews Paper Co., 18.27 cents (100,000 pounds); D. L. Ward Co., 17.85 cents (250,000 pounds).

No. 53, R. P. Andrews Paper Co., 10.09 cents (1,000,000 pounds). Price prevailing at time of shipment. D. L. Ward Co., 11.98 cents (250,000 pounds); Cauthorne Paper Co., 11.50 cents (100,000 pounds).

No. 54, R. P. Andrews Paper Co., 9.51 cents (200,00 pounds).

No. 55, R. P. Andrews Paper Co., 9.07 cents (100,00 pounds).

No. 56, R. P. Andrews Paper Co., 8.48 cents (300,000 pounds).

No. 61, Barton, Duer & Koch Paper Co., 11.69 cents.

No. 64, Howard Paper Mills, Inc., 20.51 cents and 19.54 cents (Aetna Paper Co. Div.).

No. 74, Frank Parsons Paper Co., 17.38 cents.

No. 75, R. P. Andrews Paper Co., 38.05 cents.

No. 78, R. P. Andrews Paper Co., 31.02 cents.

No. 85, Barton, Duer & Koch Paper Co., 34.50 cents.

No. 105, Howard Paper Mills, Inc., 22.19 cents.

No. 106, Howard Paper Mills, Inc., 18.04 cents.

No. 107, Howard Paper Mills, Inc., 18.04 cents.

No. 109, Howard Paper Mills, Inc., 17.08 cents.

No. 113, Howard Paper Mills, Inc., 18.74 cents.

No. 114, Howard Paper Mills, Inc., 17.79 cents.

No. 128, R. P. Andrews Paper Co., 33.32 cents and 32.35 cents.

No. 154, Howard Paper Mills, Inc., 18.04 cents.

No. 157, Howard Paper Mills, Inc., 18.74 cents.

No. 191, Howard Paper Mills, Inc., 19.14 cents.

No. 265, R. P. Andrews Paper Co., 12.16 cents.

No. 305, Stanford Paper Co., $86.73.

No. 310, R. P. Andrews Paper Co., 13.49 cents.

No. 325, Whitaker Paper Co., 7.67 cents (2,500,000 pounds); R. P. Andrews Paper Co., 7.55 cents (2,000,000 pounds).

No. 326, Whitaker Paper Co., 7.67 cents; R. P. Andrews Paper Co., 7.55 cents.

No. 327, Whitaker Paper Co., 7.67 cents; R. P. Andrews Paper Co., 7.55 cents.

Clopay Refinancing To Acquire Plant

(Continued from page 14)

The present company was incorporated under the laws of Maryland on July 2, 1934, succeeding to a business begun originally around 1859. The original business was engaged in wholesaling paper and allied products. It entered the manufacturing field in 1910. Five years later it started manufacturing dry cleaning delivery bags and hotel laundry bags.

It was not until 1930 that the parent company began making paper window shades to retail at 10 cents (exclusive of roller), and this item caught on quickly. By 1933, the manufacture of window shades, garment storage bags and garment delivery bags had become the predominating business of the concern.

It was at this juncture that it was decided to separate the wholesale business from manufacturing operations. This was accomplished by segregating the wholesale business into a subsidiary company, which later was disposed of by complete liquidation.

The company started the manufacture of venetian blinds in 1940. Slats for these were made of fiber and retailed at approximately one-half the price of the more conventional wooden or steel blinds. While the sales of venetian blinds last year amounted to about $462,000, their production has been reduced temporarily because the company is making substantial changes in the present product and is converting its Spring Valley, New York, plant to the manufacture of a new type of venetian blind, it was reported.

South America Looks To North Says Rivers

NEW YORK — Roy D. Rivers, well-known paper mill engineer, who was active in this country for many years among various paper mills but who for the last eight years has been living in South America, is at present on a visit to the United States to study developments in the paper machinery field.

Mr. Rivers is employed as a technical consultant by Industria, Inc., of 52 Broadway, export representatives for The Black-Clawson Company, Shartle Brothers Machine Company, Dilts Machine Works, Bird Machine Company, B. F. Perkins & Son, Inc., and others. Mr. Rivers' permanent headquarters are at Sao Paulo, Brazil, although he travels over the entire South American continent for the account of this concern.

"There is at present," says Mr. Rivers, "a very considerable interest among South American paper mills to make their operations more efficient by installing modern equipment and improving their methods. Consumption of paper per capita in the South American countries is ridiculously low by comparison with United States consumption, for which reason the field of expansion in the production of paper and board in South America is practically limitless. Prior to the war, American equipment was not sold in South America to any great extent due to European competition, but in recent years a great many South American paper mills have started to appreciate the higher efficiency and dependability of American machinery as compared with machinery made in other countries. Particularly in the field of stock preparation I believe the South Americans will in the future look to the United States to furnish equipment and ideas.

"As an additional proof of interest on the part of South American paper mills I would like to mention that a great number of representatives from these mills are at present traveling in the United States for the purpose of studying modern equipment and methods in the paper making field in this country. I hope that producers in the United States will bear with these foreign visitors and not have too many objections to showing them their installations. These South Americans are in fact no competitors of American paper mills, since it is quite natural for the South American countries to produce a substantial part of their own requirements for paper and paper products."

K. E. Sundquist, president of Industria, Inc., has also stated in this connection that Industria, Inc., is an organization recently formed, which has taken over the activities previously handled by the Machinery Department of Elof Hansson Inc. of New York.

FOR BOOK PAPER PROCESSING

Diamond PRODUCTS MEET EVERY SPECIFICATION

- SODA ASH
- CAUSTIC SODA
- LIQUID CHLORINE

ALKALI

DIAMOND ALKALI COMPANY

PITTSBURGH 22, PA., *and Everywhere*

T. & H. "Postwar Plan" Involves $400,000

BOSTON—A little over a year ago the Tileston & Hollingsworth Company formulated its so-called "T & H Post-War Plan." It is a long-range plan for many improvements and additions to their Hyde Park (Boston) mill, extensive rearrangements to their Boston office at 213 Congress street, and many new items to be sold through the sales department.

Among the improvements at the mill is the new raw-material storehouse. Some idea of the size of the building may be obtained from the fact that seven freight cars can be placed on a siding inside the building. The whole siding will hold a total of twenty-two cars.

Many new features will be used for the more efficient handling of materials. For example, clay will be received in bulk and sucked from the cars and distributed automatically to either the storage tanks or the beater-room tanks. To date the No. 1 Machine has been completely renovated and remodeled and put into operation. A new calender stock has been installed on No. 2 Machine, with an improved method for removing the rolls for regrinding. A new Jordan has been installed as well as a new shipping office and telephone system. On the agenda for the future are a new washer and Hydrapulper, new bleaching equipment, some major improvements on No. 3 Machine, new locker room and showers, a new testing laboratory, new officers for the foremen, and the improvements to the ladies' restrooms.

At the Boston office a general rearrangement is planned for the more efficient handling of the work and the better utilization of space. The order department will be streamlined with the addition of a new teletype machine which will not only transmit the orders to the mill as at present, but will also make out invoices, acknowledgments, delivery slips and departmental copies, all in one operation. This machine has been on order for some time, and delivery is expected very soon.

The sales department's plans were formulated some time ago, and are only awaiting a change in conditions to be made effective. New methods in merchandising and distribution, as well as many new items, are in the offing. Improvements in color, quality and finish have already taken place in many instances, and this will be continued as time goes on. Several new items have been added to the T & H line, and many more are due.

All this adds up to one thing—better paper and better service for the New England printer.

Angier Corp. Consolidates Its Sales Activities

FRAMINGHAM, Mass. — Distribution and sales of Angier protective papers, the wartime responsibility of Angier Sales Corporation, will now be handled by Angier Corporation. Board Chairman E. H. Angier's report of the consolidation of Angier Sales Corporation with the parent company stated that general sales policies will not be altered.

George A. Kuhn, president of the former Angier Sales Corporation, has been appointed to the newly created office of vice-president in charge of sales. Other officers of the company are John M. Angier, president, and A. J. Thiel, vice-president and treasurer.

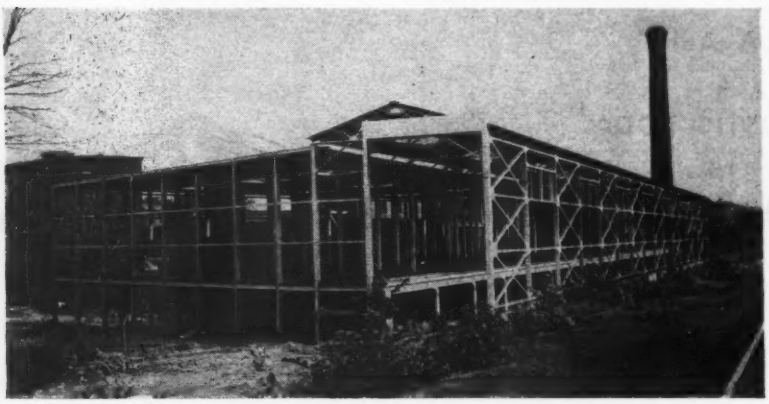
Col. Mason Joins Southern Paperboard

SAVANNAH, Ga. — Col. Charles H. Mason, a veteran of World War II, has been named personnel director for the Southern Paperboard Corporation here. Construction at the new plant is about 40 percent complete, and officials are shooting for a November 1 deadline.

Colonel Mason was commissioned in 1934 shortly after his graduation from the University of Alabama. He served overseas with the Eighth Air Force as a service group commander.

Ad Club Elects Howland

BOSTON—Arthur V. Howland, vice-president of Tileston & Hollingsworth Co., has been elected treasurer of the Advertising Club of Boston.



As progress is made on the new T. & H. storehouse

Mando Opens Research For Public Inspection

INTERNATIONAL FALLS, Minn. — The finest in forest products research facilities and scientific equipment will be on display Friday and Saturday, June 27 and 28. Recently completed, the new research laboratory of the Minnesota and Ontario Paper Company will be open for public inspection on those dates between the hours of 1 and 9 p.m.

The new laboratory, which has been under construction for the past two years, will permit the development of a greatly broadened and intensified research program. The laboratory is well equipped for the analysis, testing and development of present products and new products. New uses for present products and chemical by-products of the operations are expected to be found.

Visitors at the open house will see the finest in pulp and paper chemical equipment — pilot plants, specially designed machines, chemical apparatus and proving equipment.

The new laboratory of modern design and brick, tile, steel and concrete construction has 26 rooms on two floors. It has an attractive reception lobby, a manager's office, fire-proof vault for important records, a well stocked library, several individual laboratories and offices. Also included are a complete machine shop, a special room for humidity testing, an organic and an analytical laboratory, and wash rooms with lockers and showers for the personnel. There is on the main floor a two-story open area, 50 feet wide by 118 feet long, where testing equipment and pilot plants are installed.

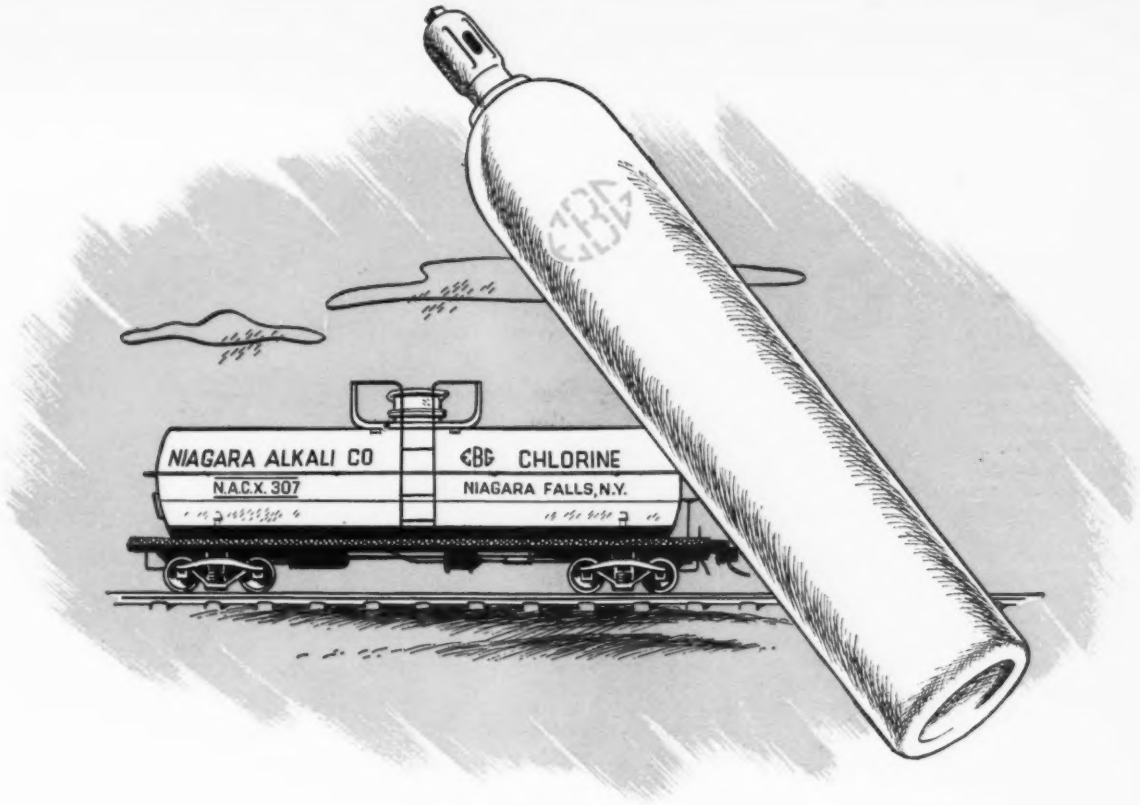
Many items of new equipment which will be on display include digesters, beaters, sheet mold, grinder, presses, ovens, mixers, scales, lathes, miller, and miscellaneous chemical and testing equipment.

The research program is guided by R. H. M. Robinson, chairman of the board of directors of the company and chairman of the executive research committee. Mr. Robinson has been with Mando for sixteen years, being president from 1941 to 1945.

M. S. Wunderlich, the director of research, also headquarters in the Minneapolis offices of the company. Mr. Wunderlich, who is one of the country's pioneers of insulation research, was manager of Insulite sales prior to assuming his present position. He has been with Mando since 1932.

The laboratory and research program at International Falls is under the direct supervision of Dr. J. O. Burton originally of Duluth, who came to Mando in 1937 from Washington, D. C. There he was engaged in advanced research for the U. S. Government.

After the open house on June 27th and June 28th, the laboratory will be closed to all except research department personnel.



The importance

OF BEING NIAGARA EBG LIQUID CHLORINE

LIQUID CHLORINE continues to increase in importance not only as an agent for the purification of water and the bleaching of textiles, paper and other products but also as a convenient chemical "tool" for the development of new and useful organic compounds.

As the first American producer of this chemical and a pioneer in electrochemical product development, Niagara's service in Liquid Chlorine is backed by advanced knowledge and experience that can be of continuous value to you in obtaining the best results from its use.

A new 48-page booklet giving essential data on the uses, characteristics, physical properties and handling of Niagara EBG Liquid Chlorine is available on request. Niagara Alkali Company, 60 East 42 Street, New York 17, N. Y.

An Essential Part of America's Great Chemical Enterprise

NIAGARA ALKALI COMPANY

CAUSTIC POTASH • CAUSTIC SODA
CARBONATE OF POTASH

LIQUID CHLORINE • NIAGATHAL
PARADICHLOROBENZENE

IMPORTS

NEW YORK IMPORTS

WEEK ENDING JUNE 21, 1947

SUMMARY

Newsprint .....12754 rolls, 480 bls.
Printing Paper ....251 rolls, 20 cs.
Coated Paper .....38 cs.
Gummed Paper .....92 cs.
Wrapping Paper..502 rolls, 2503 bls.
Filter Paper .....3 cs.
Cellophane Paper .....1 cs.
Strawboard .....28 rolls, 400 pkgs.
Miscellaneous Paper ..78 rolls, 1-cs.

NEWSPRINT

N. Y. Sun, Stuart Prince, Cornerbrook, 1216 rolls.
N. Y. World Telegram, Stuart Prince, Cornerbrook, 926 rolls.
Clinton Paper Corp., Stuart Prince, Cornerbrook, 618 rolls.
Robert A. Olsen Co., G. T. D., Donnacona, 376 rolls.
N. Y. Journal American, Markland, Liverpool, N. S., 1268 rolls.
N. Y. Tribune, Markland, Liverpool, N. S., 622 rolls.
N. Y. World Telegram, Markland, Liverpool, N. S., 1700 rolls.
Brooklyn Eagle, Markland, Liverpool, N. S., 752 rolls.
Herald Statesman, Inc., Markland, Liverpool, N. S., 42 rolls.
Richmond Newspapers, Inc., Markland, Liverpool, N. S., 1791 rolls.
N. Y. Times, Rockliffe Park, Botwood, 3443 rolls.
H. Reeve Angel & Co., Inc., Rydboholm, Stockholm, 480 bls.

PRINTING PAPER

The Lafayette Co., Charles D. Boston, Liverpool, 2 cs.
Oxford University Press, Charles D. Boston, Liverpool, 18 cs.
Kenelly Paper Co., Drottningholm, Gothenburg, 82 rolls.
Baldwin Paper Co., Drottningholm, Gothenburg, 169 rolls.

COATED PAPER

F. P. Gaskell, Elvsia, Glasgow, 38 cs. **(for cigarette tips).**

GUMMED PAPER

B. F. Drakenfeld & Co., Charles D. Boston, Liverpool, 56 cs.
B. F. Drakenfeld & Co., Biddeford Victory, Liverpool, 36 cs.

WRAPPING PAPER

Jay Madden Corp., Rydboholm, Stockholm, 2428 bls.
Curacao Trading Corp., Drottningholm, Gothenburg, 75 bls. (glazed sulphite).
Bank of The Manhattan Co., Drottningholm, Gothenburg, 133 rolls.
Manufacturers Trust Co., Drottningholm, Gothenburg, 236 rolls.
Public National Bank Trust Co., Drottningholm, Gothenburg, 133 rolls.

FILTER PAPER

H. Reeve Angel & Co., Inc., Mauretania, Southampton, 3 cs.

CELLOPHANE PAPER

H. Pollak, Edam, Rotterdam, 1 cs.

STRAWBOARD

Joe Salwen Paper Products Corp., Veendam, Rotterdam, 400 pkgs., 28 rolls.

MISCELLANEOUS PAPER

Resolute Paper Products Corp., Drottningholm, Gothenburg, 78 rolls.
Intermaritime Forwarding Co., Charles D. Boston, Liverpool, 1 cs.

RAGS, BAGGINGS, ETC.

Railway Supply & Manufacturing Co., Pioneer Gem, Shanghai, 100 bls. cotton waste.
(———), Veendam, Rotterdam, 63 bls. cotton rags.
Riverside Mills, Mount Mansfield, Bombay, 150 bls. cotton waste.
Camden Fiber Mills, Mount Mansfield, Bombay, 50 bls. cotton waste.

(Continued on page 42)

TARENTUM PRODUCTS CORPORATION

Tarentum, Pennsylvania

FOR SALE—Wonderful buy of following equipment and materials to highest bidder. We reserve the right to accept or reject any bids that are made.

Item No.	Qty.		Price
1	1	184" Sheet cutter complete with stands for 10 rolls, and layboy. This is a Moore & White simplex cutter. Also has complete set of jiggers for layboy. Have DC electrical equipment for above.	$4000.00
2	1	Daniel Rag Cutter #2—Complete with five cylinder Holyoke Duster.	$ 700.00
3	1	R40 Reducer, 12 to 1 ratio	$ 127.00
4	1	Mat Conveyor steel construction 4' wide, 3' high, 42' long, driven by one Jones Spur Gear Reducer, ratio 27 to 1, serial 19135. Driven by one Sprague Electric DC Motor type LC 10 HP 37.2 amps. 230 V. 100 RPM Ser. DL 2005215, complete with sheaves and V Belt drive, one Westinghouse Automatic Starter.	$ 425.00
5	1	John Waldron Corrugated & Embosser #711, 52"	$2000.00
6	1	Tharpe Hydraulic Press complete with 4 steam platen plates 48" x 40"	$2100.00
7	1	Viscolizer Pump for above press.	$1200.00

MISCELLANEOUS

8	2	Platform Scales.	$ 50.00
9		Paper Testing Equipment.	$ 250.00
10		Two-wheeled hand trucks.	$ 60.00
11	1	set—Black and Clawson Calendar Stands complete with bearings and 8 rolls, 80" face.	$3150.00
12	1	set—Black and Clawson Calendar Stands complete with 9 rolls, 100" face.	$3850.00
13	1	set—2 spool reels, vertical extension 9' 2" face.	$ 800.00
14	1	set—Vertical reels, 2 spool, 7' 2" face.	$ 600.00
15	1	Whitco Steam Turbine used for driving induced pressure fan for boiler. Whitco Turbine type BC. 2985 steam pressure 140 to 250 lbs., speed 1480, back pressure 7 lbs., HP 23 GOOD CONDITION.	$ 450.00

MISCELLANEOUS SUPPLIES

CORES:

250 pcs.—6" I.D. 21½" long ½" wall—NEW
32 pcs.—6" I.D. 18" long ½" wall
100 pcs.—6" I.D. 24½" long 7/16" wall
110 pcs.—6" I.D. 30" long ½" wall
170 pcs.—6" I.D. cores 35½" long ½" wall
250 pcs.—Wooden cores 36" long 10" dia. 3½" sq. hole.

CORES WITH STEEL ENDS 3" I.D. Hole

29 pcs.—21½"
17 pcs.—21"
19 pcs.—22½"
5 pcs.—28"
2 pcs.—24½"
3 pcs.—31½"
3 pcs.—28½"

CORES WITH STEEL ENDS 6" I.D. Hole

28 pcs.—40"
5 pcs.—42"

CORES:

3280 pcs.	1½" x 4	$24.00
2500 pcs.	1¼" x 5	18.00
2550 pcs.	1¼" x 6	18.00
976 pcs.	1¼" x 14	18.00
560 pcs.	1¼" x 10	6.50
773 pcs.	1¼" x 13	12.00
415 pcs.	1¼" x 25	18.00
2100 pcs.	1¼" x 9	24.00
218 pcs.	1¼" x 20	6.00
1730 pcs.	1¼" x 3	.00
2200 pcs.	1¼" x 1½	8.00
684 pcs.	1¼" x 18	14.00
300 pcs.	1¼" x 15	6.00
2275 pcs.	1¼" x 2	8.50
1125 pcs.	1¼" x 3½	8.50
650 pcs.	1¼" x 3¼"	4.00
2700 pcs.	1¼" x 2½"	10.00
6300 pcs.	1¼" x 1"	14.00
550 pcs.	1¼" x 8"	8.00
750 pcs.	1¼" x 8½"	4.50
475 pcs.	1¼" x 12	8.00
60 pcs.	1¼" x 36	3.00
575 pcs.	1¼" x 7	4.00
430 pcs.	1¼" x 2¼	1.00

ADDING MACHINE PLUGS:

25 bags—2 5/16" long 1⅛ O.D.—7/16" hole (800 per bag)
2 bags—standard size

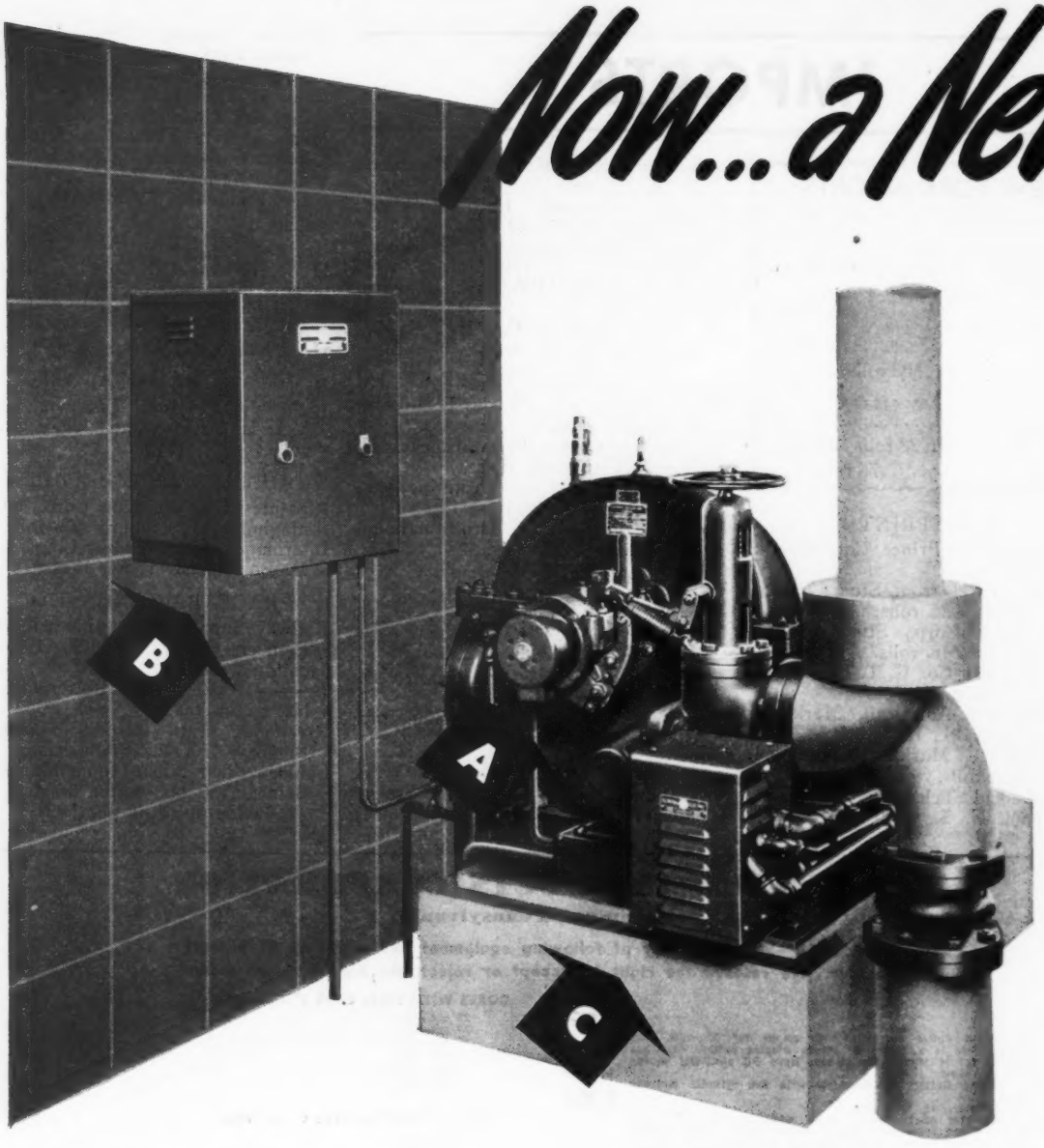
DIE WIPE PLUGS

2 bags—1½" hole 3½ plug $8.00

TARENTUM PRODUCTS CORPORATION, Tarentum, Pa. **Contact Mr. J. V. Mason, Tarentum 1470**

TF

Now... a New



ELECTRICAL GOVERNING gives you a better turbine speed control

The functioning of the new General Electric turbine governor is simple. A tachometer generator (A) measures turbine speed and sends a voltage signal to speed-adjusting rheostats in a control panel (B). The signal then goes to a solenoid valve which regulates an hydraulic piston (C). This piston opens or closes a governing valve which controls the flow of steam to the turbine. If the turbine is running at the desired speed, nothing is changed. But if it runs too fast or too slow, the tachometer voltage will vary from the standard set by the rheostats. This will actuate the solenoid valve, change the position of the hydraulic piston and permit more or less steam to enter the turbine until the desired speed is secured.

GENERAL ELECTRIC

Turbine Drive

High Accuracy (± 0.1 per cent)

Wide Speed Range (as high as 30 to 1)

Here's good news for users of mechanical-drive turbines! To meet the demand for a more accurate method of controlling drive speeds on paper machines, General Electric announces a new turbine drive—electrically controlled. In accuracy, speed of response, and simplicity of maintenance, this drive with the new electric governor is miles ahead of anything that has been used in the past.

How accurate is it?

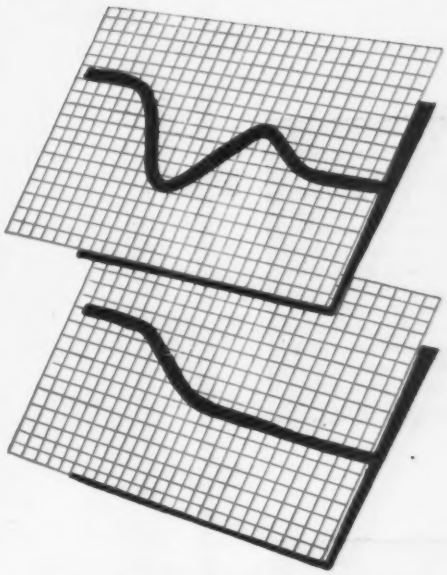
Field tests show that the new governor will hold turbine speed to 0.1 per cent of the desired setting under constant steam and load conditions. Speed change can be accomplished smoothly and easily.

How wide a speed range?

Though you may not want to operate your machines over such a wide speed range, this new G-E governor makes possible as high as 30 to 1 variation in drive speeds. By providing accurate speed control throughout this range, the governor adds versatility to your paper machines—enables them to handle "special" jobs with ease.

The new General Electric turbine governor is well protected against wear and tear in operation. All important elements are safely housed in protective enclosures which will not corrode in damp atmospheres. Properly installed, the governor operates indefinitely without special attention. The mechanical-drive-turbine specialist in your local G-E office will be glad to give you complete details. Call him today! Or write for the bulletin. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

PAPER-MACHINE DRIVES



TAKES THE "JITTERS" OUT OF TURBINE CONTROL

These two charts illustrate how a General Electric turbine governor adjusts speed smoothly and at a uniform rate. Formerly, turbine speed, particularly when changed, had a tendency to fluctuate above and below the desired level for a considerable period. While this "hunting" continued, paper thickness varied far beyond the set limits. The new governor enables a turbine to come up or down to speed smoothly and quickly and hold that speed constantly.

APPARATUS DEPT., SEC. A 663-26
General Electric Company
Schenectady 5, N. Y.

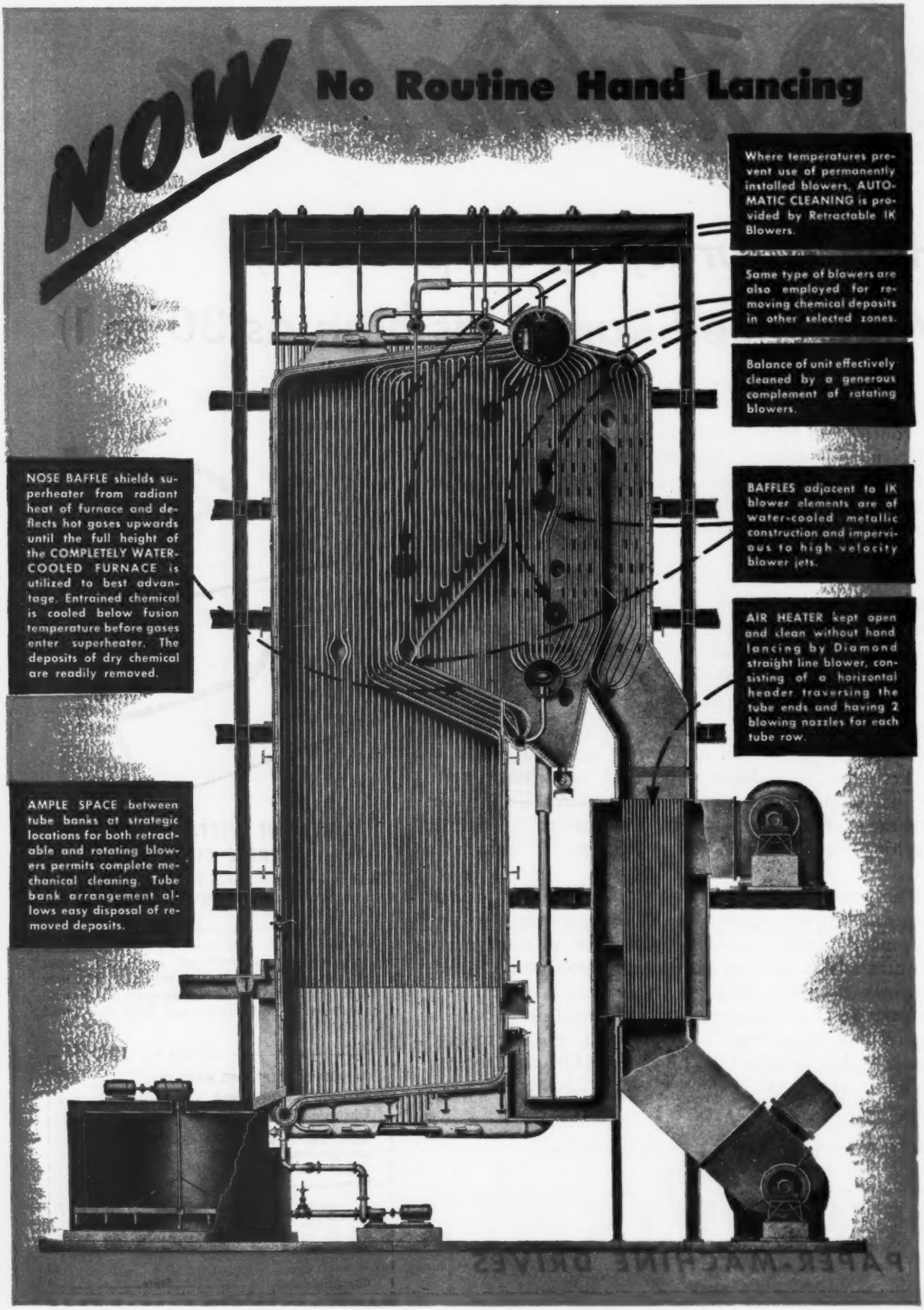
Please send me Bulletin GEA-4764, on the electrically-governed turbine drive.

Name.....

Company.....

Address.....

City.....State.....


NOW
No Routine Hand Lancing
Where temperatures prevent use of permanently installed blowers, AUTOMATIC CLEANING is provided by Retractable IK Blowers.
Same type of blowers are also employed for removing chemical deposits in other selected zones.
Balance of unit effectively cleaned by a generous complement of rotating blowers.
NOSE BAFFLE shields superheater from radiant heat of furnace and deflects hot gases upwards until the full height of the COMPLETELY WATER-COOLED FURNACE is utilized to best advantage. Entrained chemical is cooled below fusion temperature before gases enter superheater. The deposits of dry chemical are readily removed.
BAFFLES adjacent to IK blower elements are of water-cooled metallic construction and impervious to high velocity blower jets.
AIR HEATER kept open and clean without hand lancing by Diamond straight line blower, consisting of a horizontal header traversing the tube ends and having 2 blowing nozzles for each tube row.
AMPLE SPACE between tube banks at strategic locations for both retractable and rotating blowers permits complete mechanical cleaning. Tube bank arrangement allows easy disposal of removed deposits.

With B & W-Tomlinson Recovery Units

DIAMOND RETRACTABLE TYPE IK BLOWER remains outside Recovery Unit when not in use. Two nozzles as shown at right are advanced into and across the unit and simultaneously rotated by the air motor at left. Full blowing pressure is maintained at nozzles and uniform cleaning accomplished over entire width of unit.

New savings in operating labor requirements together with greater continuity of operation are now offered users of B&W-Tomlinson Recovery Units.

These additional advantages have been made possible through progressive changes and improvements in the design of these units which have eliminated the need for routine hand lancing. Details of these important features are illustrated on the opposite page.

P-207

Water-Tube Boilers, for Stationary Power Plants, for Marine Service . . . Water-Cooled Furnaces . . . Superheaters . . . Economizers . . . Air Heaters . . . Pulverized-Coal Equipment . . . Chain-Grate Stokers . . . Oil, Gas and Multifuel Burners . . . Seamless and Welded Tubes and Pipe . . . Refractories . . . Process Equipment.

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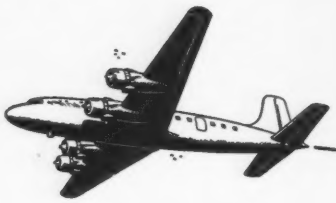
THE BABCOCK & WILCOX CO.
GENERAL OFFICES: 85 LIBERTY ST., NEW YORK 6, N.Y.
WORKS: ALLIANCE AND BARBERTON, O.; AUGUSTA, GA.

Cabin in the sky.. 1947 style



Some more interesting applications for GEON polyvinyl resins

YOU'RE looking inside the new DC-6 in that picture. And you're seeing a few of the yards and yards of wall trim and floor covering—made from GEON polyvinyl resins—that are going into these huge new commercial planes.

Like so many products made from GEON, these were selected because they have exactly the right properties in exactly the right combination.

For example, these flexible materials are light weight, an important consideration in any aviation product. Yet they are extremely tough—resist wear and abrasion. They have high resistance to flame, heat, cold, aging, sunlight, water, foods, chemicals, and most other normally destructive factors. They can be made in brilliant or delicate colors. And they can quickly be washed clean with soap and water.

GEON resins may be pressure or injection molded, extruded, calendered or cast into sheet or film. In solution, latex, or paste forms they may be used as coatings for fabrics, fibres, and papers. The variety of end products is literally limitless.

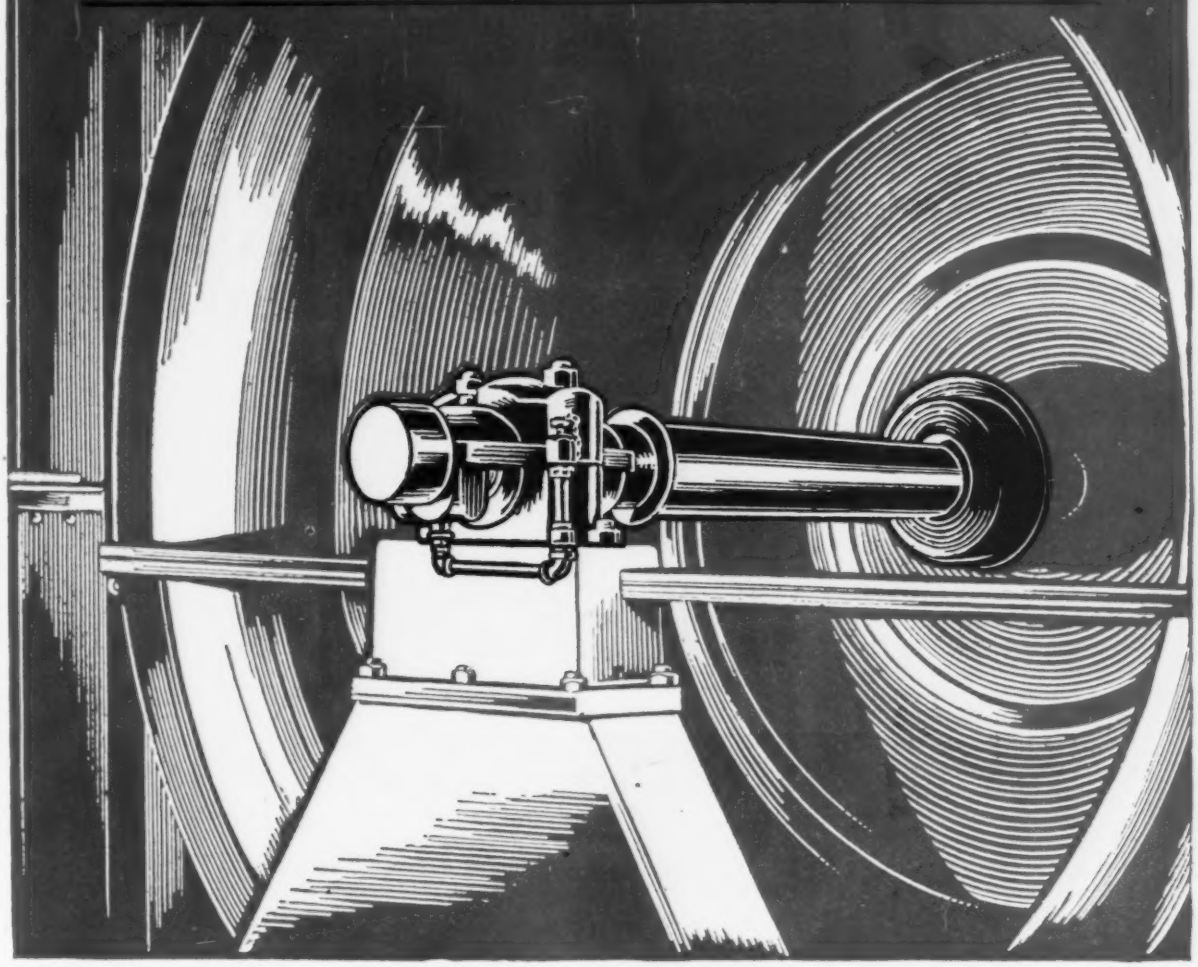
We make no finished products from GEON or from other raw materials manufactured by B. F. Goodrich Chemical Company. However, we'll be glad to work with you on any special problems or applications in connection with GEON polyvinyl resins, HYCAR American rubber, KRISTON thermosetting resins or GOOD-RITE chemicals. For more information please write Dept. U-7, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

GEON polyvinyl materials • HYCAR American rubber • KRISTON thermosetting resins • GOOD-RITE chemicals

"BEARINGS RUN 10% COOLER



since changing to Tycol industrial greases

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INDUSTRIAL LUBRICANTS

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TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE · NEW YORK 4, N. Y.

"Production speeded 65%...
Repair costs slashed 30%...
Deposits eliminated...
Highly stable...
Consumption cut 25%..."

This report from a plant engineer typifies the kind of trouble-free, cost-cutting lubrication provided by Tycol Industrial greases. They contain more high-grade cylinder oil—less soap—which means better performance in every application.

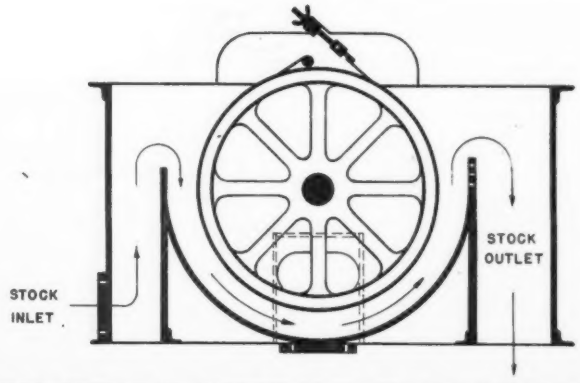
For aid in the selection of Tycol greases best suited for your particular needs, contact your nearest Tide Water Associated office today.

LUBRICATION—"ENGINEERED TO FIT THE JOB"

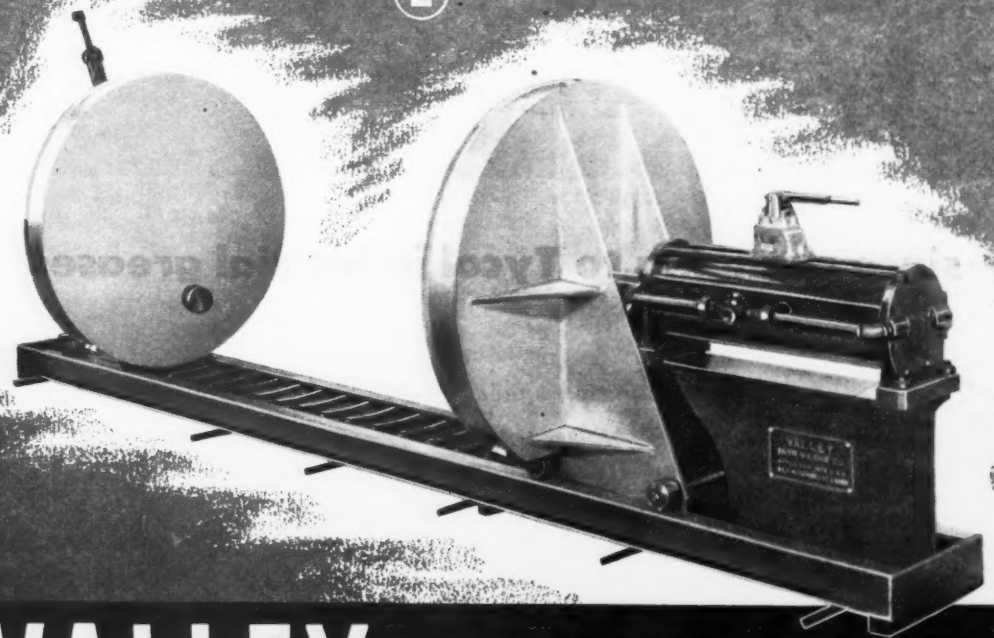
2 COST CUTTERS BY VALLEY

UP-TO-THE-MINUTE MODERN DESIGN

1 ALL STEEL THICKENER FOR KRAFT MILLS

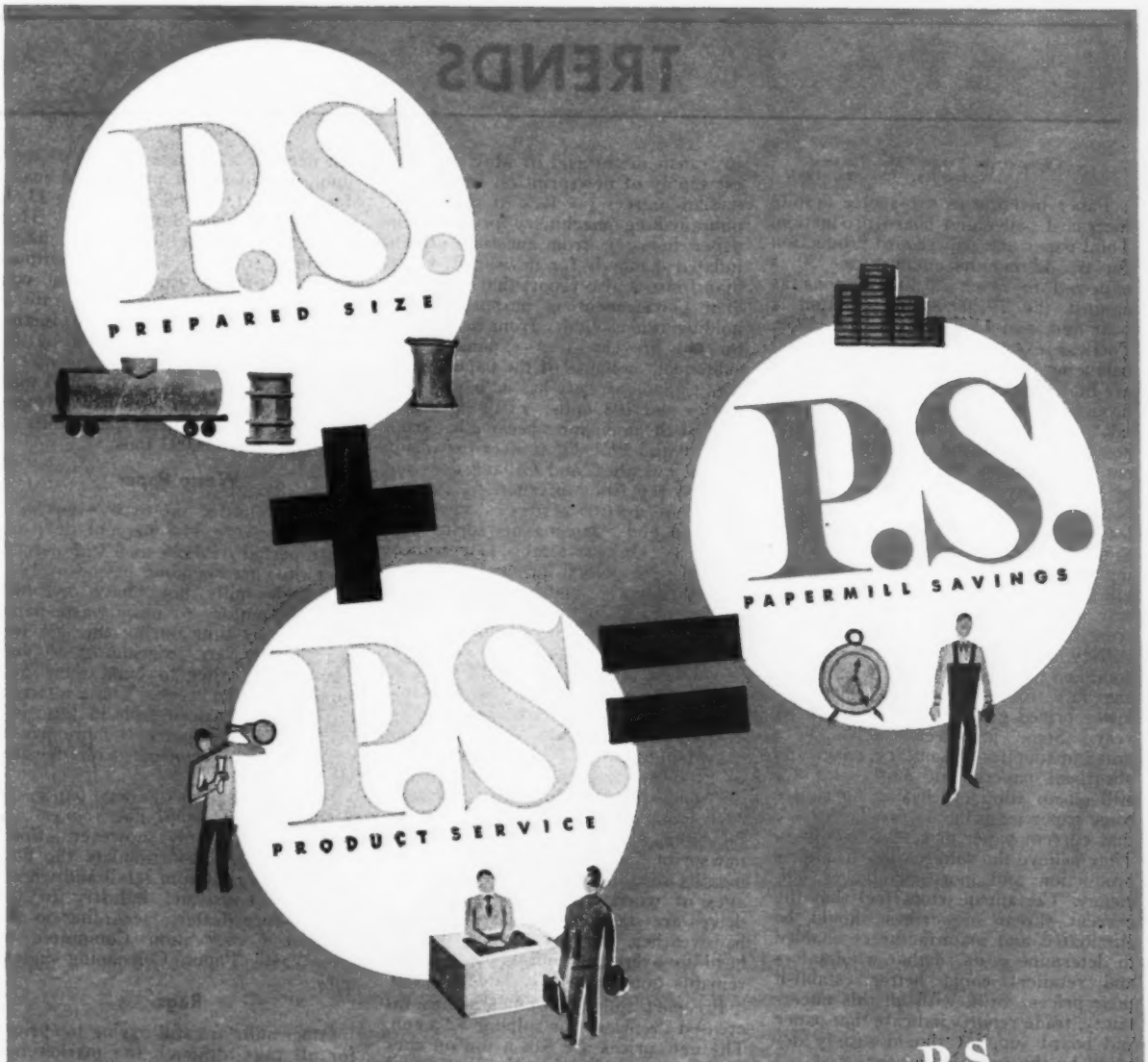


2 VALLEY ROLL END PASTER



VALLEY IRON WORKS COMPANY

APPLETON, WISCONSIN



HERE'S A FORMULA every papermaker should know—*one that paper and board mills everywhere have used profitably for years!*

Hercules, as a major producer of gum and wood rosin, has access to the basic raw materials for the finest Prepared Sizes. Careful control over the production and processing of these raw materials assures the papermaker of consistently uniform sizes designed to meet his most exacting needs. Hercules' Product Service is the *plus* offered through Hercules' service representatives—men who *know* papermaking.

Together, Hercules Prepared Size and Product Service add up to Papermill Savings in time, trouble, money, and labor.

P.S.
Hercules Prepared Sizes include:

ROSIN SIZES
(*dry, paste, or emulsion; light or dark grades*)

ROSIN WAX SIZES
(*dry, paste, or emulsion; light or dark grades*)

WAX EMULSIONS
(*Paracol*®)

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P7-6

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, June 25, 1947.

Paper inventories are spotty despite increased paper and board production. Total paper and paperboard production for the 12 months ending June 30 is expected to reach 20,300,000 tons as against the 19,200,000 ton output a year ago, and 13,500,000 tons in 1939. Postwar expansion goes little beyond balancing the deteriorating mills which are high cost operators; the latter were brought back into production only to take advantage of the wartime and postwar markets and would have to go out of business rather than reduce prices. Many large paper users have bought up mills to supply themselves, leaving less paper on the open market. Some manufacturers are now producing a larger proportion of bag and other converting papers than in prewar years, partially accounting for the scarcity of wrapping paper. There is still evidence of upgrading in writing, book and printing papers, but prospects are fair for greater availability of lower priced grades by the end of the year. Some improvement has been noted in supplies of sanitary, tissue and absorbent papers, but most sales are still on an allotment basis. There are some paper manufacturers who believe that current paper prices are too high. They believe the solution lies in higher production and more manpower efficiency. Certain quarters feel that the current threat of strikes should be eliminated and manufacturers enabled to determine costs so that wholesalers and retailers could better establish their prices. Still, with all this uncertainty, trade reports indicate that paper and board supplies should satisfy demand by the end of the year.

The index of general business activity for the week ended June 14 rose to 146.4 for 145.1 in the previous week, compared with 131.6 for the corresponding week in 1946. The index of paperboard production rose to 187.1 from 179.7 in the previous week, compared with 164.6 for the corresponding week in 1946.

Paper production for the week ended June 14 was estimated at 108.1 percent, compared with 106.7 for the preceding week, with 104.0 for the corresponding week in 1946, with 91.5 for 1945, with 91.5 for 1944, and with 87.0 for the corresponding week in 1943.

Paperboard production for the week ended June 14 was 103.0 percent of capacity, compared with 98.0 percent for the preceding week, with 98.0 for the corresponding week in 1946, with 93.0 for 1945, with 95.0 for 1944, and with 95.0 percent for the corresponding week in 1943.

Daily newspapers in the United States had an over-all average of 28 days' supply of newsprint on hand and in transit at the end of May, the lowest supply of newsprint on record. Canadian sources say lack of timber and pulp making machinery prevents the paper industry from meeting present inflated demands for newsprint. Canadian sources also report that the Canadian Government is purposely withholding timber limits from new investors to prevent over-expansion and subsequent collapse of the paper industry. Canada already has 82 paper companies and 108 mills. Fifty-eight percent of the companies became bankrupt in 1930 and 1931 due to over-expansion in the Twenties, and Canada does not want a repetition of that. . . . Some Canadian manufacturers view our Alaskan and Alabama newsprint projects as United States Government subsidies in which profit is not the impelling motive and price not the deciding factor. Further, Canadian newsprint producers point out that the proposed mills for Alaska will not be in production before 1950 at the earliest, and that completion of the Alabama mill would also require well over a year. Meanwhile, these same Canadian manufacturers believe modernization programs will speed up Canadian production of newsprint this year and early next year by 10 percent. Recent floods may have a serious effect on newsprint production in the latter months of this year, owing to shortages of wood. This year's Canadian drives are starting very late, owing to bad weather, and this handicap will be hard to overcome unless the weather remains good unusually late this fall.

Freeport Sulphur Company has increased its prices for sulphur $2 a ton. The new prices are $18 a ton on cars at the company's mines in Texas and Louisiana, and $19.50 a ton on steamer at Gulf of Mexico ports. Prices were advanced because of substantial increases in wages, materials and other costs. The company's domestic price of sulphur had not been changed throughout the war, or in the post-war period up to now. The last change in price was in 1938 when a reduction of $2 a ton brought the quotation down to the $16-$17.50 figure. . . . After two decades of planned reforestation, plus the acquisition of further timber properties, Nekoosa-Edwards now has under its management some 110,000 acres of timber. The reforestation program, based upon a plan of substantial yield planting, is ultimately expected to supply nearly all the company's pulpwood requirements.

Wood Pulp

April production of wood pulp in the United States was 986,696 tons, 30,921 tons below the March high. The decrease was general for all grades with the sulphate grades showing the greatest decline. . . . Consumption of wood pulp in paper and paperboard manufacture at 1,094,167 tons, was 33,665 tons below the March figure. Here again the greatest decline was in the sulphate grades. . . . The continued shortage of new European pulp, coupled with the continued high rate of consumption, resulted in a further withdrawal from inventories by the paper and board mills. . . . Inventories of wood pulp at paper and board mills on April 30 were 381,694 tons. Inventories of wood pulp at pulp mills on April 30 were 85,093 tons.

Waste Paper

Collections for the first 24 weeks of this year were 11.8 percent over the same period of 1946 and 16.2 percent over the corresponding period of 1945. Although mills now have a much larger inventory of news waste paper than at any time during the last two years, they are continuing to buy strongly in order to build their new supply week to week. Trade quarters predict that Eastern mills in June will need about 35 percent more waste paper than they consumed in June last year.

Container grades of waste paper, old corrugated and solid fiber boxes, are still in short supply; however, efforts are being made to stimulate the flow of this material from retail and wholesale merchants and industry to the waste paper dealers, according to the Eastern Conservation Committee of the Waste Paper Consuming industries.

Rags

Paper mills are still paying top prices for all rags although the market has eased up considerably as mills are now operating on vacation schedules.

White shirts at $11.50 to $12 per 100 pounds delivered to the mills plus dealer's commission are still featured in the new domestic cotton cuttings' market, while No. 2 whites repacked at $4 feature the old domestic cotton rag market.

Marathon Softball League Set For 1947 Season

MENASHA, Wis.—A Marathon Softball League has been formed for the 1947 season, according to Walter Strong, manager of the employe service department of Marathon Corporation. The league consists of six teams, each representing a different department of the company. Two rounds of games are scheduled, ending in an all-star game on August 26 when the league leaders will play a picked all-star team from the remaining five teams. Ed Christensen, Menasha, has been named league director and Frank McDowell, Menasha, league umpire.

A Case In Point: For shipping clay (Kaolin) in suspension, General American designed and built heavily insulated, steam coil heated tank cars of 10,000-gallon capacity, mounted on 70-ton trucks. Built as an experiment, these cars proved themselves in actual operation—reducing handling and cutting time and labor costs.

Orders for these special tank cars will be accepted—for delivery late in 1947. (Delivery will be made in sequence of orders received.) If your operation includes the shipment of clay, consult the nearest General American office for complete details. For many years General American has handled problems like this—designing and building cars for almost every type of liquid shipment from wine to fuel oil. Whatever you ship, wherever it goes, General American has, or can build, the cars you need. Inquiries are invited.

GENERAL AMERICAN TRANSPORTATION
CORPORATION
135 South LaSalle Street, Chicago

BRANCH OFFICES: NEW YORK • NEW ORLEANS • WASHINGTON • TULSA • CLEVELAND • DALLAS
BUFFALO • HOUSTON • PITTSBURGH • SEATTLE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

PRICES

With the elimination of price controls on paper, pulp, rags and other materials, the quotations given below once more become indicative of trends in an open market. At the moment they can be of little more, for, while some volume business still is being done under contract at the figures given below, fluctuations representing special conditions are too varied and too frequent to permit prices to be given as representing a wholly stabilized market.

Paper

(Delivered New York)

Standard News, per ton—
Roll, contract ....$90.00 to —
Sheets .....$109.00 " —

Kraft—per cwt.—Carload Quantities

Zone A, Delivered
40 lb. base weight

Superstandard Wrapping	$7.00	to	—
No. 1 Wrapping...	6.50	"	6.75
Standard Wrapping	6.00	"	6.25
Standard Bag	5.75	"	6.25

Tissues—Per Ream 24x36 (480) 10 lb. Zone 1.

Wh. No. 1 Frd....	1.35	to	1.65
Wh. No. 1 M. G....	1.35	"	1.65
Wh. No. 1½.....	1.20	"	1.45
Wh. No. 2	1.30	"	1.55
Wh. Anti-Tar	2.75	"	4.25
Kraft Unbl.	1.45	"	1.85
Manila No. 2	1.25	"	1.45

Toilet—Per Case of 100 rolls—1 M Sheets.

Unbleached	4.47	to	5.50
Bleached	6.50	"	—

Paper Towels—Per Case of 3750—Zone 1.

Wh. C. fold 11x13¼	4.39	to	4.80
Br. Sgl. fold 10 in.	2.67	"	3.00
Br. M'tif'd 9½x14¼	3.78	"	4.15
Br. M'tif'd 9½x9¼.	2.67	"	3.00

Manila—per cwt.—C. l. f. a.

No. 1 Jute.....	11.25	to	—
No. 1 Manila 35 lb.	6.90	"	7.00

Boards, per ton—

News $92.50		"	—
Chip	90.00	"	—
Sgl. Mla. L1 Chip*	102.50	"	—
White Pat. Coated*	120.00	"	—
Kraft Liners 42 lb.*	84.00	"	95.00
Binders Boards ..	94.00	"	126.00

* Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1: Rag Content Bonds and Ledgers—

White, Assorted Items
Bonds, per cwt.

	Carton	4 C't'n	Ton
100% Rag Ext. No. 1	$55.00	$50.00	$48.00
100% Rag	46.50	43.00	41.25
75% Rag	35.00	32.50	31.50
50% Rag	31.50	28.75	27.50
25% Rag	28.00	25.50	24.50

Ledgers, per cwt.

100% Rag Ext. No. 1	$54.25	$50.00	$48.00
100% Rag	46.25	42.50	40.75
75% Rag	36.00	33.25	31.75
50% Rag	31.00	28.00	27.00
25% Rag	27.25	24.75	23.75

Sulphite Bonds and Ledgers—White, Assorted Items
Bonds, per cwt.

No. 1	$18.75	$16.25	$15.50
No. 2	17.00	15.25	14.50
No. 4	16.00	14.50	14.00

Ledgers, per cwt.

No. 1	$17.00	$17.00	$16.35
No. 2	17.75	16.25	15.50
No. 4	17.00	15.00	14.25

Free Sheet Book Papers—White, Cased Paper

(Per cwt.)	Case	Ton
No. 1 Glossy Coated...	$19.40	$18.60
No. 2 Glossy Coated...	18.15	17.35
No. 3 Glossy Coated...	17.65	17.00

(Per cwt.)	Case	Ton
No. 1 Antique (Water marked)	$14.90	$14.25
No. 2 Offset	15.35	14.70
A Grade E. F.....	13.90	13.30
A Grade S. & S. C.....	14.40	13.70
B Grade E. F.....	Nominal	
B Grade S. C.....	Nominal	
C Grade E. F.....	Nominal	
C Grade S. C.....	Nominal	
D Grade E. F.....	Nominal	
D Grade S. & S. C.....	Nominal	

Wood Pulp

Domestic mill prices delivered with former OPA freight allowances.

	Per Short ADT
Groundwood	$75.00 to $80.00
Unbleached Sulphite.	115.00 " 117.00
Bleached Sulphite ..	121.00 " 125.00
Bleached Soda	115.00 " 120.00
Unbleached Kraft ...	112.50 " 120.00
Southern Kraft	90.00 " 102.50

Canadian mill Prices delivered with freight allowances unless otherwise specified:

	Per Short ADT
Select Unbleached Kraft (no freight allowance)	115.00 " —
Unbleached Sulphite.	115.00 " 117.00
Glassine Unbleached Sulphite (no freight allowance)	112.00 " —
Bleached Soda	105.00 " 115.00
Groundwood	75.00 " 80.00
Sideruns Pulping News	75.00 " 80.00
Hardwood and Specialty Grades	Nominal

Swedish Quotations
Ex. dock, New York

	Per Short ADT
Bleached Kraft .....$150.00 to 156.00	
Bleached Sulphite ...	151.00 " 158.50
Unbleached Sulphite..	121.00 " 131.00
Unbleached Kraft	116.00 " 126.00

Finnish Quotations
Ex. dock, New York

	Per Short ADT
Bleached Sulphite	$165.00
Unbleached Sulphite	132.50
Unbleached Sulphite (special grade)	137.50
Unbleached Sulphate	132.50
Unbleached Sulphate (special grade)	159.00

New Domestic Cotton Cuttings

(Prices delivered Mill Plus Dealer's Commission)

White Shirt .....$11.50 to	$12.00
Light Silesias	7.50
Unbleached Muslin ...	11.50 " 12.00
White Back Blue Overalls	8.25
Blue Overalls	7.75
Unbl. Fancy Shirt....	4.50 " 5.00
Light Percales	5.50 " 6.00
Light Prints	5.25 " 5.95
Washables	4.00
Bleachable Khaki	5.50 " 6.00
Unbleachable Khaki ..	5.00 " 5.50
Cottonades	4.50 " 5.00

Old Domestic Cotton Rags

(F.O.B. Shipping Point Plus Dealer's Commission)

	Per 100 lbs.
No. 1 Whites Repacked.....	$5.00
No. 1 Whites Miscellaneous..	4.25
No. 2 Whites Repacked.....	4.00
No. 2 Whites Miscellaneous..	3.50
Blue Overalls	3.75
Thirds and Blues Repacked..	3.00
Thirds and Blues Miscellaneous	2.50
No. 1 Roofing Rags.....	2.20
No. 2 Roofing Rags.....	2.10
No. 3 Jute Bagging.....	2.00
No. 4 Brussels and hard back carpets	2.00
No. 5A Roofing Rags.....	2.00

New Foreign Cotton Cuttings

(Prices delivered Mill)

	Per 100 lbs.
New Dark Cuttings....	$6.00 to —
New Mixed Cuttings...	6.50 " —
Light Silesias	9.00 " 10.00
Light Flannelettes	8.00 " 9.00
New White Cuttings ..	13.00 " 15.00
Fancy Shirt Cuttings...	9.00 " 10.00
Light Prints	8.00 " 10.00
Bleachable Khaki, No. 1	7.00 " 7.50
Unbl. Khaki, No. 1....	6.25 " 6.75

Old Foreign Rags

(F.O.B. New York)

	Per 100 lbs.
No. 1 White Linens...	$14.00 to 16.00
No. 2 White Linens...	12.00 " 13.00
No. 3 White Linens...	8.00 " 9.00
No. 4 White Linens...	8.00 " 9.00
No. 1 White Cottons...	10.00 " 12.00
No. 2 White Cottons...	8.00 " 9.00
No. 3 White Cottons...	6.50 " 7.00
No. 4 White Cottons...	5.00 " 5.50
Extra Light Prints ...	7.50 " 8.00
No. 1 New Light Prints	6.25 " 6.75
Med. Light Prints.....	5.25 " 5.75
Dutch Blue Cottons....	5.25 " 5.50
Checks and Blues.....	4.00 " 4.25
Linsey Garments	3.00 " 3.75
Dark Cottons	2.50 " 3.00
Old Shopperies	2.50 " 3.00
New Shopperies	2.50 " 3.00

Bagging

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny, No. 1..	$4.75 to 5.00
Domestic Gunny, No. 1	4.25 " 4.50
Light Wool Tares.....	4.50 " 4.75
Heavy Wool Tares.....	4.75 " 5.00
Bright Bagging	4.25 " 4.50
Foreign Manila Rope...	6.00 " 7.00
Domestic Manila Rope	5.75 " 6.50
Jute Strings	4.50 " 5.00
No. 1 Sisal Strings ..	5.50 " 6.00
Mixed Strings	1.75 " 2.50

Waste Paper

Prices to Mills
(Dollars Per Ton)
F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut .....$100.00@$120.00	
No. 1 Hard White Envelope Cuts	90.00 " 100.00
No. 1 Hard White Shavings, unruled..	100.00 " 110.00
No. 1 Hard White Shavings, ruled ...	80.00 " 90.00
Soft White Shavings, one cut	95.00 " 105.00
No. 1 Soft White Shavings	85.00 " 95.00
Soft White Shavings, Misc.	65.00 " 75.00
No. 1 Fly Leaf Shavings	55.00 " 60.00
No. 2 Fly Leaf Shavings	50.00 " 55.00
No. 1 Groundwood Fly Leaf Shavings	30.00 " 33.00
No. 2 Mixed Groundwood Fly Leaf Shavings	(nominal)
Mixed Colored Shavings	(nominal)
Mixed Groundwood Colored Shavings...	(nominal)
Overissue Magazines..	(nominal)
No. 1 Heavy Books & Magazines	30.00 " 37.50
Mixed Books	15.00 " 20.00
No. 1 White Ledger..	60.00 " 65.00
New Manila Envelope Cuttings, one cut..	100.00 " 110.00
New Manila Envelope Cuttings	65.00 " 75.00
Extra Manilas	35.00 " 40.00
Mixed Kraft, Env. & Bag Cuttings	75.00 " 85.00
Kraft Envelope Cuttings	100.00 " 105.00
Triple Sorted, No. 1 Brown Soft Kraft.	60.00 " 70.00
New 100% Kraft Corrugated Cuttings ..	60.00 " 70.00
No. 1 Assorted Old Kraft	40.00 " 50.00
New Jute Corrugated Cuttings	27.00 " —
Old 100% Kraft Corrugated Containers.	(nominal)
No. 1 News	19.00 " 20.00
No. 1 Mixed Paper..	17.00 " 19.00
Box Board Cuttings..	20.00 " —
White Blank News...	75.00 " 80.00
Overissue News	(nominal)
Old Corrugated	28.00 " 30.00
Mill Wrappers	22.00 " 25.00

Twines

All Prices Nominal
(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—India	.26	@	.29
Fine Polished—Fine India	.31	"	.35
Unpolished—Paper Makers	.20	"	.26
Tube Rope	.22	"	.27½
Wrapping	.26	"	.33½
Cotton	.70	"	—
(Hard Fiber)			
Mex. Sisal	.21	"	.24
Manila	.33	"	—
(Hemp)			
Polished Hemp	.63	"	—

PHILADELPHIA

Domestic Rags (New)

(F.O.B. Eastern Shipping Point)

Shirt Cuttings— New White No. 1..	.10½	@	.11
New White No. 2..	nominal		
Light Silesias	.07½	"	.08
Black Silesias, soft	.06½	"	.07
New Unbleached ..	.10½	"	.11¼
Washable Prints ..	.06½	"	.07
Washable No. 1....	.05	"	.05½
Blue Overall	.07½	"	.08
Cottons—According to grades— Washable Shredding	.03½	"	.04
Fancy Percales	.06¾	"	.07¼
New Black Soft....	nominal		
Khaki Cuttings— Unbleachable Cotton Cuttings	.05½	"	.06
Bleachable Cotton Cuttings	.06½	"	.07
Men's Corduroy ..	.05½	"	.06
Ladies' Corduroy ..	.05	"	.05½
Cottonades	.05½	"	.06

Domestic Rags (Old)

(F.O.B. Eastern Shipping Point)

White No. 1—Repacked	4.50	@	5.00
Mixed White	4.00	"	4.25
White No. 2—Repacked	3.50	"	3.75
Thirds and Blues— Miscellaneous	2.25	"	2.50
Repacked	2.75	"	3.00
Roofing Stock— Foreign No. 1.....	nominal		
Domestic No. 1....	2.00	"	2.05
Domestic No. 2....	1.90	"	1.95
Roofing Bagging ..	1.90	"	1.95
Old Manila Rope....	5.75	"	6.00

Bagging

(F.O.B. Eastern Shipping Point)

Gunny No. 1— Foreign	nominal		
Domestic	4.25	@	4.50
No. 1 Clean Bright— Sisal Strings	.04	"	.04½
No. 2 Clean Bright— Sisal Strings	.03	"	.03¼
Sisal Jute	.02¾	"	.03
Scrap— No. 1	3.25	"	3.50
No. 2	1.75	"	1.85

. . . and at the RIGHT PRICE!

TRY it as a furnish—learn why users in increasing number are finding it an ideal base material in the manufacture of fine cotton content paper at prices consistent with your requirements.

An in-the-mill demonstration by a Rayco engineer will prove the economy of Rayco Linter Cotton. Delivered clean, ready for the cooker, it speeds production by eliminating rag room operations and reducing cooking time. Rayco Linter Cotton is easily adaptable to your own process and equipment.

THE RAILWAY SUPPLY & MFG. CO. and Affiliates

Specialists in Grading, Marketing and Processing Cotton Fibers

General Offices: CINCINNATI, OHIO

NEW YORK . . . CHICAGO . . . MEMPHIS . . . DALLAS . . . DETROIT

RAYCO LINTER COTTON

Wool Tares, heavy...	4.00	"	4.25
New Burlap Cuttings	6.00	"	6.50

Old Papers

(F. o. b. Phila.)
Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00	@	$115.00
No. 1 Hard White Shavings, unruled..	100.00	"	—
Soft White Shavings, one cut	90.00	"	95.00
White Blank News..	60.00	"	65.00
Soft White Shavings.	80.00	"	—
No. 1 White Ledger.	75.00	"	80.00
Ledger, colored	60.00	"	65.00
No. 1 Heavy Books & Magazines	40.00	"	45.00
Overissue Magazines..	nominal		
New Manila Envelope Cuttings	80.00	"	—
No. 1 Assorted Old Kraft	60.00	"	65.00
No. 1 Mixed Paper..	20.00	"	—
Box Board Cuttings..	20.00	"	—
Kraft Corrugated Cuttings	nominal		
Old Corrugated	30.00	"	35.00
Overissue News	40.00	"	—
No. 1 News	—	"	30.00

BOSTON

Old Papers

(F. o. b. Boston)
Mill Prices, Baled

No. 1 Hard White Shavings, unruled..	7.00	@	8.00
No. 1 Hard White Shavings, ruled	7.00	"	8.00
Soft White Shavings, Misc.	6.25	"	6.50
No. 1 Fly Leaf Shavings	1.65	"	1.80
No. 2 Fly Leaf Shavings	2.00	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	1.25	"	1.50
Mixed Colored Shavings	2.50	"	2.75
New Manila Envelope Cuts, one cut	5.00	"	5.50
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft.	3.50	"	3.75
Mixed Kraft Env. & Bag Cuttings	3.75	"	4.00
Kraft Envelope Cuttings	3.75	"	4.00
No. 1 Heavy Books & Magazines	2.50	"	2.60
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	4.25	"	4.50
Groundwood Tabulating Cards	1.35	"	—
White Blank News..	1.65	"	—
No. 1 Assorted Old Kraft	3.50	"	—
No. 1 Mixed Paper..	—	"	.95
Overissue News	1.50	"	1.75
Box Board Cuttings..	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers.	1.75	"	—
Old Corrugated Containers	1.50	"	—
Jute Corrugated Cuttings	1.07½	"	—
Paper Strings	2.25	"	2.50

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	—	@	4.75
Domestic	—	"	4.75
Sisal Rope No. 1	6.00	"	—
Sisal Rope No. 2	5.50	"	—
Mixed Rope	5.25	"	—
Mixed Strings	2.00	"	2.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	3.00	"	3.50
Manila Rope—			
Foreign	(nominal)		
Domestic	6.25	"	—
Soft Jute Rope	5.00	"	5.25
Jute Carpet Threads.	6.00	"	—
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	—	"	4.75
Domestic	—	"	4.87½
South America	5.25	"	—
Wool Tares—			
Foreign	4.50	"	—
Domestic	4.50	"	—
Aust. Wool Pouches..	5.00	"	5.25
New Zealand Wool Pouches	5.25	"	5.50
New Burlap Cuttings	6.00	"	6.50
Heavy Baling Bagging	5.25	"	5.75
Paper Mill Bagging..	3.50	"	3.75
No. 1 Roofing Bagging	1.75	"	—

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.08	@	—
Fancy Percales	.07½	"	.08
New White No. 1	.11	"	.11½
New Light Flannelettes	.08	"	.08½
Canton Flannels, Bleached	.10	"	.11
Underwear Cutters, Bleached	.10	"	.11
Underwear Cutters, Unbleached	.11	"	.12
Silesias No. 1	.08	"	.08½
New Black Silesias..	.05	"	—
Red Cotton Cuttings.	.05	"	—
Blue Overalls	.08½	"	.09
Soft Unbleached	.11	"	.12
Blue Cheviots	.08½	"	.09
Fancy	.06	"	—
Washable	.06	"	—
Khaki Cuttings	.06½	"	.07¼
Corduroy	.03½	"	—
Khaki Canvas	.06¼	"	.06½
B. V. D. Cuttings	.10½	"	.11½

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	2.00	"	—
No. 2	1.90	"	2.00
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A..	1.35	"	—
Quality B..	1.20	"	—
Quality C..	.95	"	—
Old Manila Rope	6.00	"	—

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)
Mill Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	$110.00	@	$120.00
No. 1 Hard White Shavings, unruled..	105.00	"	115.00
No. 1 Soft White Shavings	80.00	"	95.00
No. 1 White Ledger..	55.00	"	65.00
No. 1 Heavy Books & Magazines	40.00	"	43.00
White Blank News..	43.00	"	49.00
Mixed Kraft Env. & Bag Cuttings	75.00	"	85.00
No. 1 Assorted Old Kraft	45.00	"	55.00
Overissue News	28.00	"	—
No. 1 News	25.00	"	—
No. 1 Mixed Paper..	20.00	"	—
Old Corrugated	36.00	"	—
Mill Wrappers	22.00	"	—

MARKETS

BLANC FIXE—Supplies adequate to meet steady demand, deliveries are fair. Pulp is currently quoted at $55 per ton, in barrels, car lots, at works; and $60 less car lots same basis.

BLEACHING POWDER—Supplies tight although paper mill demand has eased up. Shipments improved. Quotations are unchanged. Prices on bleaching powder range from $2.75 to $3.75 per 100 pounds.

CASEIN — Current prices on processed acid precipitated casein are reported around 24 to 26 cents per pound for domestic grades and 28 to 32 cents for imported grades f.o.b. shipping point.

CAUSTIC SODA—Tight market continues, relief expected as new production arrives. Solid caustic soda is reported at $2.50 to $2.75 per 100 pounds; flaked and ground offered at $2.90 to $3 per 100 pounds, car lots, at works.

CHINA CLAY — Demand continues heavy, supply tight. Domestic filler clay is currently $8.50 to $9 per ton, car lots. Coating clay is $12 car lot and $16 less car lot. Imported clay is currently quoted at from $17 to $35 per ton, in car lots, export warehouse.

CHLORINE—Demand continues strong in a tight market. Lack of tank cars continues to hamper deliveries. Quotations unchanged. Chlorine is currently quoted at $2 to $3.50 per 100 pounds.

ROSIN—Gum Rosin in drums, per 100 pounds, net, in yard New York, car lots, B, D, E, $8.90; F, G, H, I, K, M, N, WG, $9.05. WW, $9.31. Wood Rosin per 100 pounds, l.c.l., f.o.b. N. Y., B, $6.95; FF, $8.45; G, H, I, $8.81; WG, WW, $8.91, X, $9.01.

SALT CAKE — Demand continues to increase as supply shows little improvement. Prices remain unchanged. Domestic salt cake is quoted at $20 to $26 per ton in bulk. Chrome salt cake is quoted at $20 to $26 per ton.

SODA ASH — Demand active as supplies continue short, previous orders filled. Contract orders prevail at the same high levels. Current prices, car lots, per 100 pounds, are as follows: in bulk, $1.08; in paper bags, $1.20; and in barrels, $1.60.

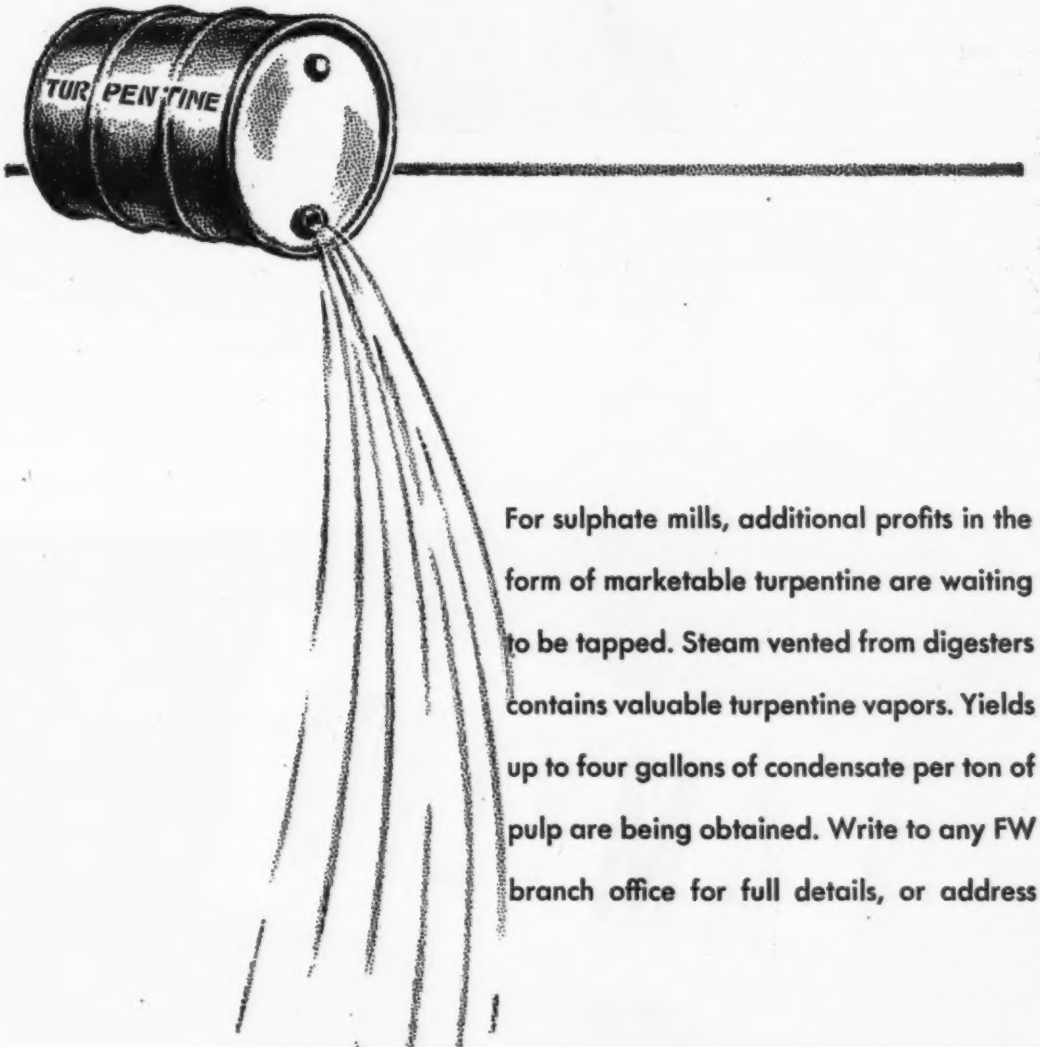
STARCH—Capacity production absorbed by active demand, export demand eased up. Starch prices continue strong with the pearl grade quoted at $5.57 per 100 pounds; powdered starch at $5.68 per 100 pounds, car lots, Chicago.

SULPHATE OF ALUMINA — Active demand covered by fair supplies. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.30 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is quoted at $1.95 to $2.25 per 100 pounds, in bags at works.

SULPHUR—Plentiful supplies to meet active domestic and export demands. Annual contracts are quoted at $18 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $19.50 per long ton.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $35 to $45 per ton. All prices in car lots.

MORE PROFITS ON PAPER!



For sulphate mills, additional profits in the form of marketable turpentine are waiting to be tapped. Steam vented from digesters contains valuable turpentine vapors. Yields up to four gallons of condensate per ton of pulp are being obtained. Write to any FW branch office for full details, or address

FOSTER WHEELER

FOSTER WHEELER CORPORATION • 165 Broadway, New York 6, New York

Liquon Introduces Silica-Removal Units

LINDEN, N. J.—Liquid Conditioning Corporation has developed equipment which applies the principles of demineralizing to the removal of silica from raw boiler feed water.

This new Liquon development employs a standard demineralizing plant, consisting of a Liquon hydrogen zeolite unit followed by a Liquon anion exchange unit. To effect the elimination of silica, a fluoride such as sodium fluoride is added to the raw water entering the hydrogen zeolite unit. Here, the fluoride is converted into hydrofluoric acid by a resin type of acid-regenerated cation exchange material known as Liquonex CR. The hydrofluoric acid combines with the silica to form fluosilicic acid while, at the same time, the Liquonex CR converts the dissolved salts in the raw water into their corresponding acids.

In the second stage Liquon anion exchange unit, the fluosilicic acid and the acids formed from the dissolved salts in the raw water are removed by Liquonex A, an alkali-regenerated anion exchange resin of high capacity.

This Liquon process therefore removes both silica and hardness from the raw water. In a modification of this process, the silica is removed without the addition of fluorides, by means of a special anion exchanger following the standard demineralizing equipment.

J. H. BELL

Who has been advanced by Foster Wheeler Corporation to be sales manager of its Dallas Division

Hammond Bag Seeks Pine Bluff Arsenal

PINE BLUFF, Ark. — The Hammond Bag and Paper Company of Wellsburg, West Virginia, is a bidder for lease of plant facilities in several units of the Pine Bluff Arsenal, operated for the government during the war by Sanderson and Porter of New York.

Harren and McCormack Join National Adhesives

NEW YORK CITY — Richard E. Harren, of Astoria, has joined the Resyn department of National Adhesives as a chemist. He is a graduate of Queens College, with post-graduate work in chemistry at Columbia University.

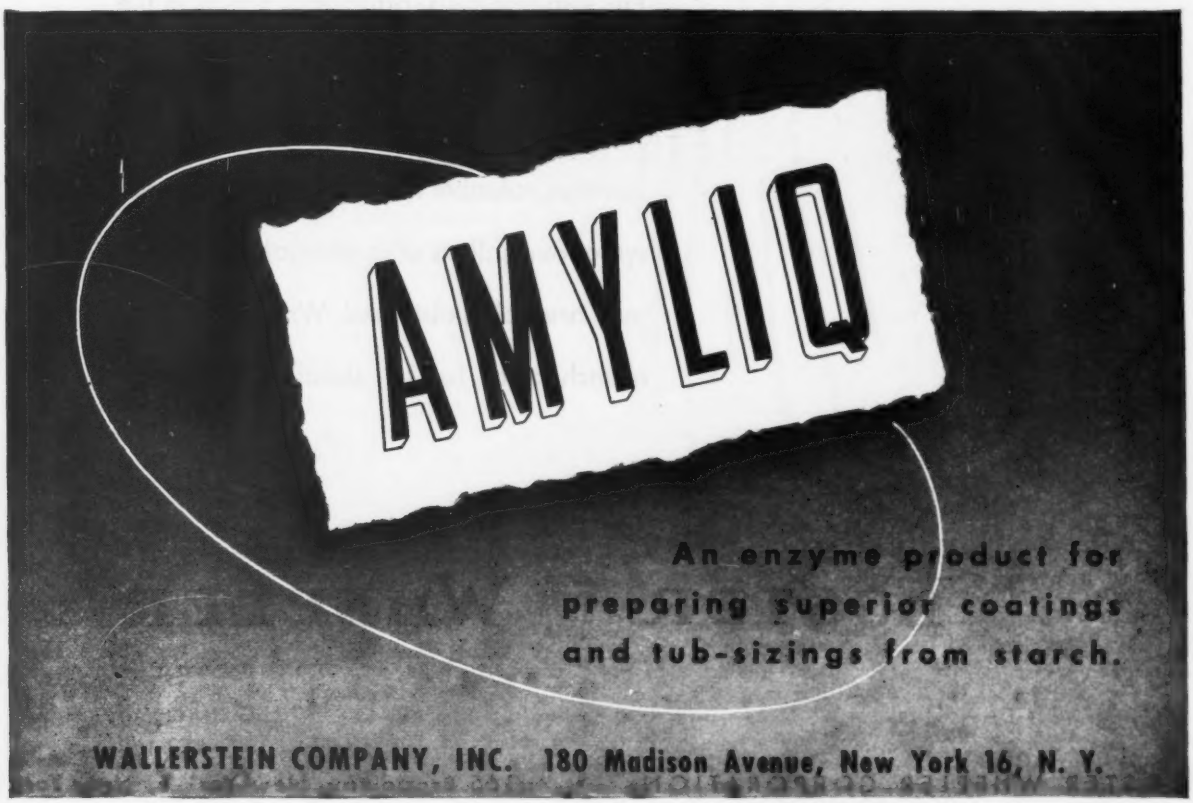
Another new member of the Resyn department is Paul H. McCormack of Brooklyn, laboratory assistant, whose work will be in physical testing. Mr. McCormack is an alumnus of Brooklyn Polytechnic Institute, where he majored in chemical engineering.

H. K. Porter Names Hintz To Pacific Coast Post

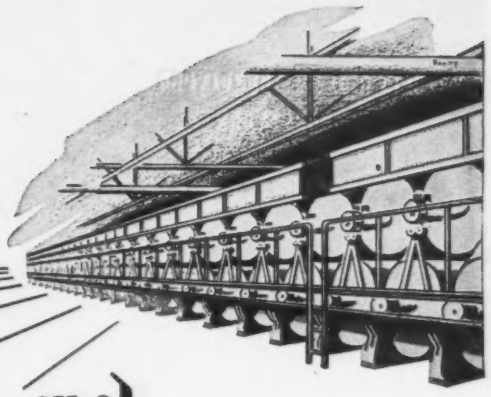
In view of the steady advancement of Porter sales on the Pacific Coast and in keeping with their proposed expansion program, H. K. Porter Company, Inc., announced today the promotion of Harold A. Hintz to Pacific Coast sales manager.

Mr. Hintz will direct the activities of all Porter sales offices on the Pacific Coast and will maintain headquarters in the Petroleum Building, Los Angeles.

At the same time, Mr. Calihan, director of sales, announced the appointment of Mr. J. F. Morley, as district sales engineer, with offices in Monadnock Building, 681 Market Street, San Francisco 5, California.


AMYLIQ
An enzyme product for
preparing superior coatings
and tub-sizings from starch.
WALLERSTEIN COMPANY, INC. 180 Madison Avenue, New York 16, N. Y.

A simple chemical equation but a manufacturing headache...



$$2Cl_2 + 3Ca(OH)_2 = Ca(OCl)_2 + CaCl_2 + Ca(OH)_2 + 2H_2O$$

In the text book, the reaction between milk of lime and chlorine to make liquid bleach is simple enough. Just add chlorine to milk of lime and you've got liquid bleach. But how to do this safely, economically and uniformly, occupied the time and efforts of chlorine producers for a good many years after World War I.

Hooker paper technicians, chemists and engineers, contributed their services to this all-important project. They showed pulp and paper makers how to handle chlorine safely, how to get it into the milk of lime for more efficient production of high quality liquid bleach. The principle of the cone injector, widely used in pump circulation systems, was applied by Hooker engineers and proved an efficient method for securing more thorough mixing of chlorine and milk of lime.

Hooker's cooperation with pulp and paper makers is on a continuing basis. It is evidenced in research and the development of production and process techniques. It is continued by providing you with uniform high quality liquid chlorine, caustic soda and the other pulp and paper chemicals. Hooker helps you to turn out quality products economically and uninterruptedly.

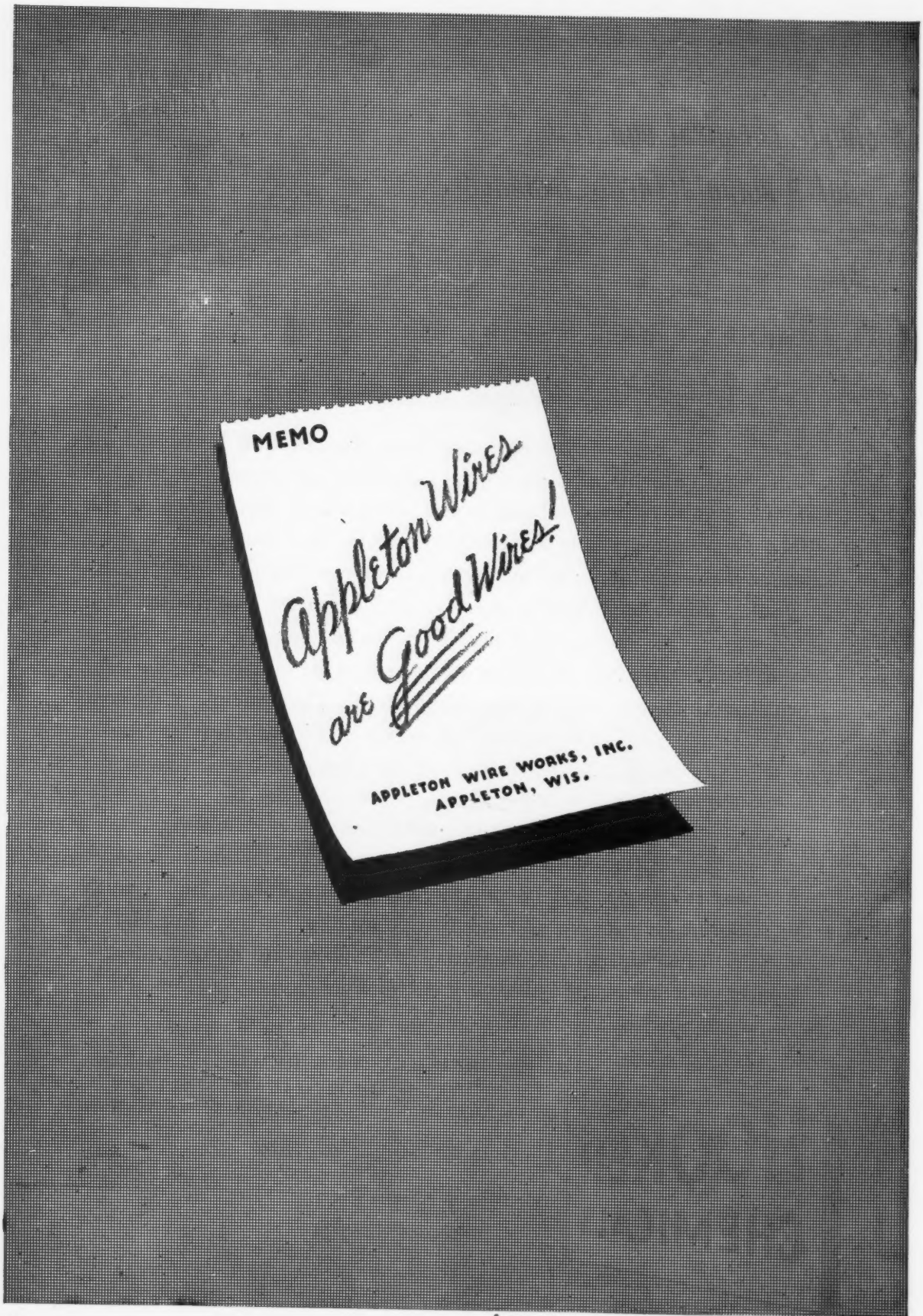
Hooker bulletins for the Pulp and Paper making industry contain helpful information. Send for a list of those available.

HOOKER ELECTROCHEMICAL COMPANY
6 UNION STREET, NIAGARA FALLS, N. Y.
New York, N.Y. Wilmington, Calif. Tacoma, Wash.

From the salt of the earth

HOOKER CHEMICALS

2802 **Caustic Soda Muriatic Acid Sodium Sulfide Paradichlorbenzene Chlorine Sodium Sulfhydrate**


MEMO
Appleton Wires are Good Wires!
APPLETON WIRE WORKS, INC.
APPLETON, WIS.

The Paper Package that Started a Revolution

Fifty years ago, most of the nation's foods were sold in bulk. Sacks and barrels slumped on the grocers' floors. Customers were served by hand and scoop.

Then in 1898, National Biscuit Company developed a new soda cracker, sealed it in a protective paperboard carton lined with wax paper and covered with a printed paper wrapper. It gave the product a name, "Uneeda Biscuit," and advertised it to the world. A uniformly good product; a sanitary package; a distinctive name; advertising. Together they revolutionized merchandising.

More manufacturers packaged their goods in paper. Advertising increased. Publications prospered. Sales soared. Business boomed. More people had jobs at better wages—to buy more goods! All because of paper. Today, paperboard accounts for more than half the tonnage of all the paper made in America.

The dramatic story of paper is told in the sound-and-color film, "Paper— Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request.

F. C. HUYCK & SONS · *Kenwood Mills* · ALBANY, NEW YORK

KENWOOD WOOL PRODUCTS

HUYCK *Felts*

Sam Himmell's Price List Is Easy to Read

NEW YORK — Samuel S. Himmell, president, Baldwin Paper Company, Inc., reports his company is mailing to the trade the new Baldwin Official Complete Price List — with up-to-date prices. The Baldwin price list differs in many respects from all other price lists, because it is complete in 24 pages; each grade is listed in full in one or two lines (making it unnecessary to refer to several different places sometimes on different pages, for sizes, weights, colors, finishes, etc.); much larger than the usual type face is used, making it easy to read.

"Everything - At - A - Glance" is the way Baldwin describes its price list, and extra copies are available gratis to executives, salesmen, estimators, teachers of printing, and all others interested in and concerned with printing.

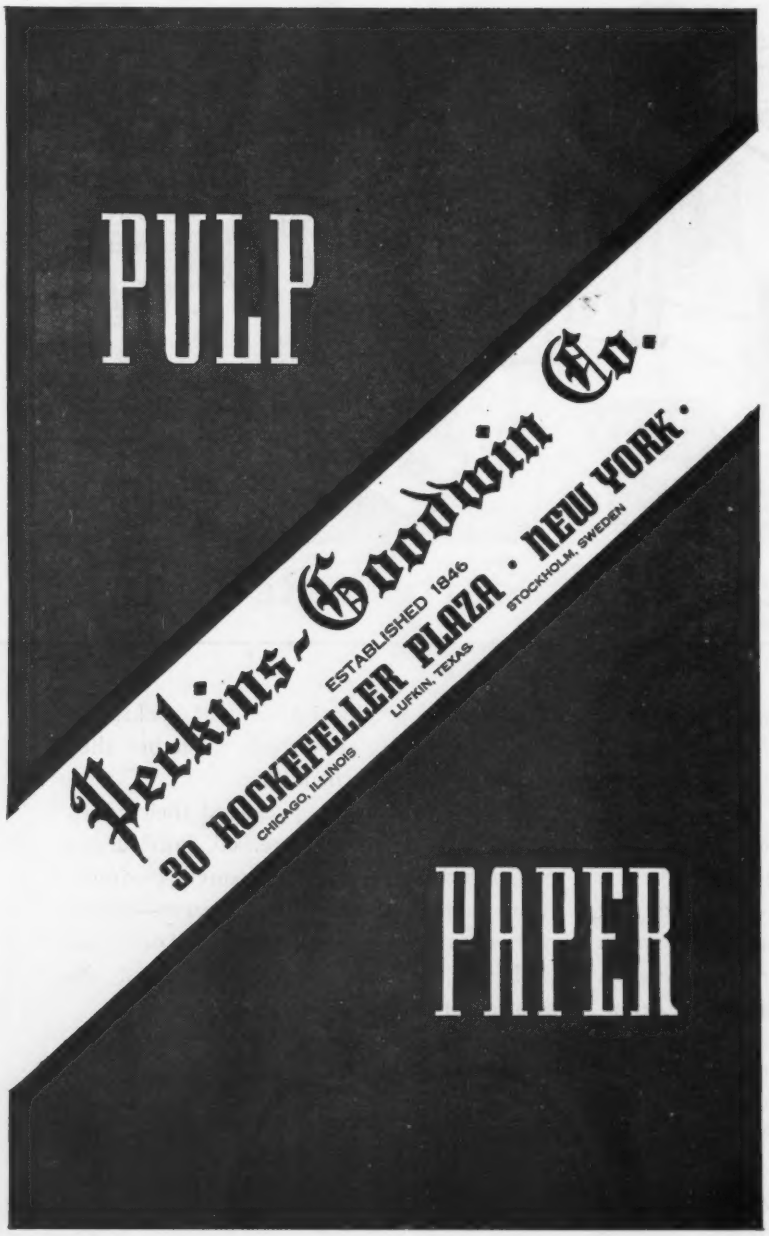
Package Machinery Men To Meet at Springfield

NEW YORK — Packaging Machinery Manufacturers Institute will hold its fifteenth annual meeting on October 6 and 7, 1947, at the Hotel Sheraton, Springfield, Mass. George A. Mohlman, president, Package Machinery Company, East Longmeadow, is chairman of the committee on arrangements.

New Acme Booklet Tells Of Cost-Saving Methods

CHICAGO—"Savings in Shipping" is a new 32-page booklet prepared by the Acme Steel Company containing authentic, illustrated case histories of savings in time, materials and labor, through the use of Acme Steel strapping methods. Actual cost figures are given. It is available free of charge to those who want to see the latest in safe, but economical methods of packaging and car bracing.

The case histories show how Steelstrapping helps those shipping in standard containers, oversize or odd shaped bundles and containers, carloads or LCL shipments.



Electric Machinery Maker Publishes New Brochures

"External Motor Protection Pays" (for large industrial drives) and "How to Figure Voltage Drop" (particularly in motor starting) are new booklets published by Electric Machinery Manufacturing Company, Minneapolis 13, Minn. Protective arrangements for motors are defined, and are illustrated with diagrams and photographs.

OBITUARY

C. F. Jenkins

CHICAGO — C. F. Jenkins, assistant vice-president and general manager of Kimberly-Clark Corporation, died suddenly June 18 while on business in Chicago.

Born in Pennsylvania in 1901, Mr. Jenkins' lifetime business association was with Kimberly - Clark. He came with the company on a full-time basis in 1926 following graduation from the Massachusetts Institute of Technology, and was for the most part active in sales department activities and administration. He was named manager of the corporation's Los Angeles office in 1931, sales division head in 1943, general sales manager in 1944, and in 1945 was appointed as assistant vice-president of the company.

Funeral services were held in his father's home in Philadelphia on Monday, June 23. His widow and two daughters, Ann and Jean, survive.

Robert B. Harbison

CHICAGO—Robert Breckinridge Harbison, western sales agent of International Paper Sales Company, Inc., died June 17th in the Wesley Memorial Hospital after an extended illness. Funeral services were held June 20th at the Donnellan Funeral Home. Mr. Harbison had been associated with the company for twenty-four years. He is survived by his wife, Louise A. Harbison, and two sisters, Mrs. Katherine Bowers of Evanston, Illinois, and Mrs. Emmeline Hunter of Danville, Kentucky.

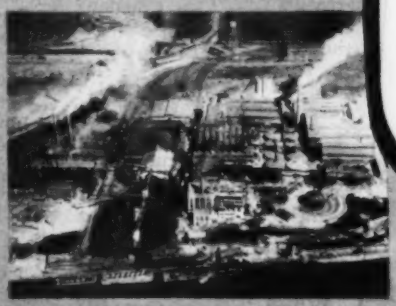
TITANOX ... *the brightest name in titanium pigments*

"Show-through" GHOSTS don't show up here!

You rid yourself of "show-through" ghosts when TITANOX is used to whiten, brighten and opacify your paper stocks. These well-known titanium dioxide pigments have been employed for many years by paper manufacturers who wish to improve the opacity and whiteness of their products.

The high refractive index of TITANOX pigments makes for greater opacity in bible, book, magazine and all other types of paper. Their fine particle sizes make for easier, more thorough dispersion.

Our paper laboratory staff is ready and always willing to help you with your paper problems. Call on your nearest Titanium Pigment Corporation office today.



• Aerial view of the plant at Sayreville, New Jersey, one of the factories where TITANOX pigments are produced to the standards of unusually high quality that make them preferred pigments.

TITANOX
TRADE MARK

TITANIUM PIGMENT CORPORATION
SOLE SALES AGENT

111 Broadway, New York 6, N. Y.
104 So. Michigan Ave., Chicago 3, Ill.
350 Townsend St., San Francisco 7, Cal.
2472 Enterprise St., Los Angeles 21, Cal.

4883

Imports

(Continued from page 21)

(———), Edam, Rotterdam, 169 bls. bagging.
Manufacturers Trust Co., Exchequer, Genoa, 245 bls. bagging.
(———), Exchequer, Istanbul, 221 bls. paperstock.
A. W. Fenton Co., Asbury Park, Naples, 166 bls. old white cottons; 313 bls. dark cottons.

HIDECUTTINGS

Chase National Bank, Stag Hound, Manila, 93 bls.

WOODPULP

Cellulose Sales Co., Rydboholm, Stockholm, 138 bls. dry sulphite pulp.
E. I. Du Pont de Nemours & Co., Drottningholm, Gothenburg, 1 case bleached sulphate pulp.
Parsons & Whittemore, Inc., Drottningholm, Gothenburg, 280 bls. dry bleached sulphite pulp.

WOODPULP BOARDS

National City Bank, Rydboholm, Gothenburg, 12 bls., 389 rolls (solid white).

MISCELLANEOUS BOARDS

American Bluefriesveem, Rydboholm, Stockholm, 1624 bls.

ALBANY IMPORTS

WEEK ENDING JUNE 21, 1947

Pagel Horton & Co., Bernhard Ingelsson, Sikea, 7010 bls. strong unbleached sulphite pulp.
Pagel Horton & Co., Bernhard Ingelsson, Ornskoldsvik, 9144 bls. dry sulphate pulp.
Cellulose Sales Co., Bernhard Ingelsson, Obbola, 2800 bls. dry sulphate pulp.
Cellulose Sales Co., Bernhard Ingelsson, Munksund, 12798 bls. kraft sulphate pulp.

BOSTON IMPORTS

WEEK ENDING JUNE 21, 1947

F. C. Strype, Rydboholm, Gothenburg, 422 rolls paper.
Gottesman & Co., Inc., Rydboholm, Gothenburg, 1016 bls. sulphate pulp.
The Borregaard Co., Inc., Rydboholm, Gothenburg, 1880 bls. dry woodpulp.
National City Bank, Rydboholm, Kotka, 1876 bls. solid white woodpulp boards; 442 bls. ground white woodpulp.
Pulp Sales Corp., Rydboholm, Kotka, 2445 bls. unbleached kraft sulphate pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JUNE 21, 1947

Madden Reeve Angel & Co., Inc., Rydboholm, Kotka, 1047 rolls newsprint.
Pulp Sales Corp., Rydboholm, Kotka, 569 bls. unbleached sulphate pulp; 2080 bls. unbleached strong sulphite pulp.
National City Bank, Rydboholm, Kotka, 3358 bls. woodpulp; 25 bls. boxboards.

BALTIMORE IMPORTS

WEEK ENDING JUNE 21, 1947

Cellulose Sales Co., Bernhard Ingelsson, Munksund, 2400 bls. kraft sulphate pulp.
Pagel Horton & Co., Bernhard Ingelsson, Skiea, 2134 bls. strong sulphate pulp.

Brown Instrument Continues On Firm Price Basis

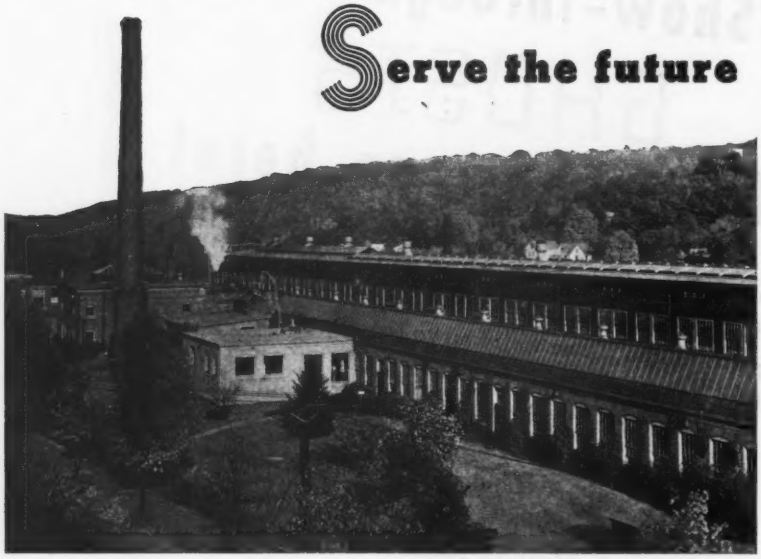
PHILADELPHIA—Despite steadily increasing labor and material costs Brown Instrument Company will continue to operate on a firm price basis in the sale of all its products, it was announced by L. M. Morley, vice president and general sales manager.

"Through intensified cost reduction and installation of automatic machinery we found a few months ago we could quote on a firm price basis," said Morley. "We eliminated the escalator clause on our equipment at a time when the industrial picture was particularly unstable. We felt that the Brown division of Minneapolis-Honeywell Regulator Company could contribute to correction of uncertainties which were unbalancing the cost and price situation."

Industry's response to the company's action, Morley added, has indicated that purchasing interest can be quickened and stabilized, wherever possible, by elimination of price uncertainties.

Making the past

Serve the future



WITH an enviable record of achievement behind us, and mindful of important responsibilities of the present and future, Warren enters its fiftieth year in business. Tomorrow's pumps will be better than today's... and to this advance Warren will make important contributions, just as it has in the past. ★ The entire Warren organization has the background, the facilities and the determination to serve you. It will continue to do so faithfully and well.

WARREN STEAM PUMP COMPANY, INC.
WARREN, MASSACHUSETTS

WARREN PUMPS

PPB½

1897 - OUR FIFTIETH ANNIVERSARY - 1947

THIS mill is using less coal than ever before . . . and turning out more tonnage. The machines are all equipped with Hamilton Felts which remove more water at the presses . . . less steam is needed at the driers . . . less coal under the boilers.

★ ★ ★

If your costs for drying paper or board are too high, you can bring them down by the use of properly selected Hamilton Felts. There are several hundred different types of Felts in the Hamilton line. Each one has been developed for use in connection with certain types of paper or board machines and of furnish. Every one has proved its efficiency by years of service under operative conditions in the mills.

Our representatives

are always available to assist manufacturers in selecting the proper felts for every purpose.

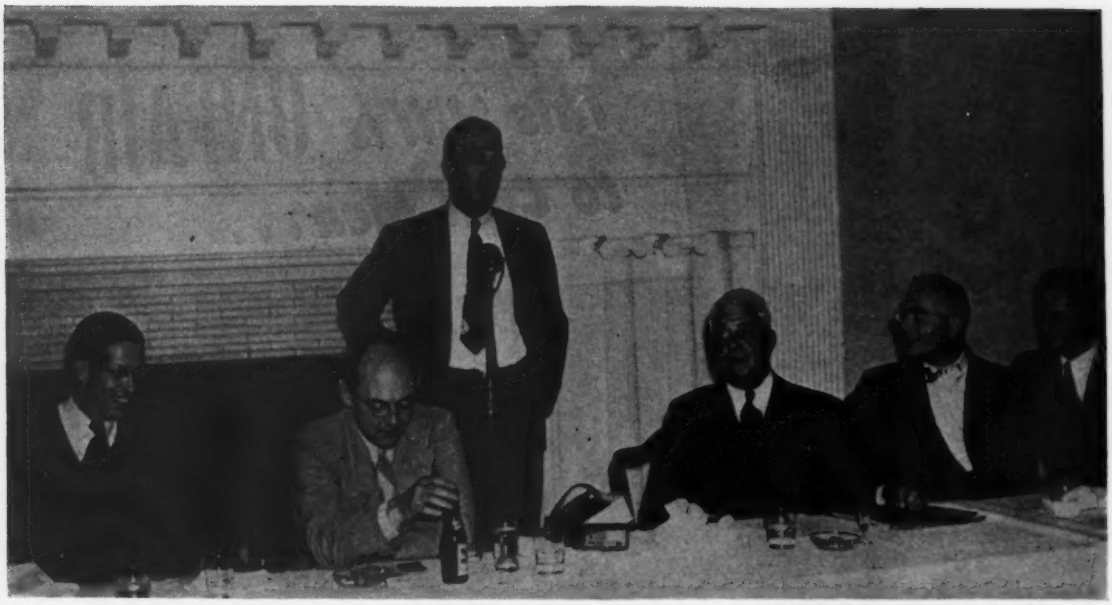
• From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

• Miami Woolen Mills •

Hamilton Felts

• Established 1858 •



W. E. BRAWN, of the Pejepscot Paper Company, President of TAPPI, expresses his appreciation to the Maine-New Hampshire TAPPI section for a gift that signified appreciation for his efforts in behalf of the section. Others at the table: R. T. BINGHAM, TAPPI; E. L. LAMB, Oxford Paper Company; M. T. ROGERS, Dewey & Almy; W. V. TORREY, S. D. Warren; H. E. PRATT, Pejepscot.

TAPPI Maine–New Hampshire Section Meets at Poland Springs

The Maine-New Hampshire Section of the Technical Association held its Spring Meeting at the Poland Spring House at Poland Springs, Maine, on June 13 and 14, 1947. A well prepared technical program and the recreational facilities were enjoyed by a group of over 150 members and their wives.

The session opened with a business meeting at which the section invited National TAPPI to hold a symposium on mechanical pulping under their sponsorship. The program to be given next year will be designed for world wide interest and will take several days.

W. E. Brawn reported for the Nominating Committee consisting of Messrs. T. M. Barry, W. E. Brawn, and Clifford Patch submitted a slate of officers for next year: E. L. Lamb, Oxford Paper Co., Chairman, J. L. Parsons, Hollingsworth & Whitney Co., Vice-Chairman, H. E. Pratt, Pejepscot Paper Co., Secretary-Treasurer.

The nominations were accepted unanimously by the members of the section.

The first paper of the technical program prepared by J. L. Parsons was presented by Harry M. Spring, Jr. of the Mutual Boiler Insurance Company, Boston, Mass., titled "A Study of Drier Operation Failures." This was a report on an introductory study of the problem and chiefly on the relative merits of drier head design.

Mr. Brawn then spoke briefly on the mills of the Northwest which he visited last month.

The equipment of a paper chemicals application laboratory was discussed by George E. Niles of the Monsanto Chemical Company. The reasons for their purchase of certain types of apparatus proved to be most interesting.

The first of a series of papers on control and recording instruments which find application in the pulp and paper industry was given by W. S. Yunker of the Foxboro Company, who was introduced by F. B. Lincoln, Jr. of the Hollingsworth & Whitney Company.

Following luncheon many of those attending took advantage of the facilities of the hotel to play golf while the ladies played bridge. The banquet was held in the evening and prizes were awarded to those winning the bridge and golf tournaments.

In token of their appreciation for the time and effort which Worthen E. Brawn has devoted to the development of the section, the Maine-New Hampshire TAPPI group presented him with a fine camera. Mr. E. R. Comee of the Pejepscot Paper Company made at the presentation.

The speaker of the evening was Mason T. Rogers, of the Dewey and Almy Chemical Company, who is president of the Packaging Institute. The title of his paper was "Paper's Place in the Packaging Industry." Mr. Rogers emphasized that a product was packed to provide a convenient package and also to carry a sales message, and that the role of paper was to provide production and attractive appearance. Giving the increase of supermarkets as an example (in 1932 there were 300 having a sales volume of 100 to 150 million dollars while in 1945 there were 9575 representing four billion dollars yearly) it was indicated that the paper industry should watch carefully the developments in the packaging industry.

Following the formal program, there was a dance. Unfortunately there was not time for the presentation of the motion picture "Paper; Pacemaker of Progress" which had been included in the program.

The predecessor of the first paper-maker was the ancient who discovered the practical use of papyrus as a writing material. He sliced the fibers of the water plant into strips and pressed them into thin sheets. When these sheets were dry, he "calendered" them with a smooth shell.

It all started in Egypt about ? B. C.

Today, as thousands of years ago, the search for a *finer* paper still goes on. That is why—in the present-day production of high-grade *coated* paper—so many manufacturers have turned to a Precipitated Calcium Carbonate of high quality.

Wyandotte Precipitated Calcium Carbonate is unsurpassed in brightness and in freedom from grit and abrasiveness . . . in hiding power and ink absorption . . . in that uniformity which is essential to fine coating.

Its superiority is the result of long experience and research in the field. For years, Wyandotte Chemicals Corporation has made a *business* of producing a Precipitated Calcium Carbonate to meet the exacting requirements of the paper industry.

If your objective is quality coating, it will pay you to get acquainted with Wyandotte Precipitated Calcium Carbonate.

Technical bulletins are available upon request.

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Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine • Hydrogen • Dry Ice • Glycols
Ethylene Dichloride • Propylene Dichloride • Chloroethers • Aromatic Sulfonic Acid Derivatives • Other Organic and Inorganic Chemicals

Wyandotte
REG. U. S. PAT. OFF.

Saturday morning Harry A. Bishop, Manager of the Northeast Pulpwood Research Center opened the meeting by describing the work and objectives of his group. They are investigating such factors as cutting and logging procedures, procurement and housing of woods labor, and pulpwood transportation from forest to the mill, all of which affect the cost of pulpwood to the pulp manufacturer,

Continuing the discourse on control instruments, Mr. Lincoln introduced J. E. Hart of the Taylor Instrument Company who presented "Pressure Measuring Devices for Special Applications."

H. A. Sholl, Brown Instrument Company, "Application of the Brown Electronik Potentiometer in the Paper Industry" and E. D. Moiles of the Leeds and Northrup Company who spoke on "pH Control in the Paper Industry."

The final paper of the meeting program was given by Dr. Stewart Dunn of the University of New Hampshire "Industrial By Products and Their Relation to Plant Growth." Dr. Dunn described the work that is in progress in which lignin and other wood waste has been added to soil. Very favorable increases in crop yields by these additions were indicated.

Appreciation was expressed by those attending the meeting for the work of the section officers and the committees who conducted the various programs.

Those who attended:

Lyle R. Jenness, N. A. Billings, Jr., J. H. Doughty, Jr., Mr. and Mrs. M. Jacobs, L. R. Mitchell, Mr. and Mrs. R. E. Cleveland, Harry E. Wallace, H. A. Morrison, W. N. Connor, R. E. Briggs, Y. S. Chandhary, Harold S. Morse, Mr. and Mrs. William J. Barrett, Mr. and Mrs. C. E. Drummond, Mr. and Mrs. A. E. Jones, Mr. N. A. Billings, Roland J. Martin, Richard T. Bingham, W. S. Yunker, H. H. Michelmore, Mr. and Mrs. F. C. Goodwill, R. Cameron Whitney, John S. Overbogh, J. W. D. Hierlihy, Francis Desmond, Frank B. Lincon, John L. Parsons, Paul F. Shirley, Jr., W. B. Morehouse, Joseph E. Connell, J. P. Conley, J. V. Wolff, A. F. Burke, John D. Retallick, F. A. Strovink, T. S. Morse, W. F. Connolly, John B. Chandler, R. F. McNett, Mr. and Mrs. Stephen B. Stafford, E. D. Moiles, J. E. Hart, Mr. and Mrs. John P. Calkin, E. J. Fenell, L. B. Rogers, L. A. Fried, O. C. Sadler, H. E. Pratt, Ivar Ekholm, Harold J. Waldron, Philip G. Fairfield, L. J. Smith, Mr. and Mrs. Henry L. Mellen, Paul Bray, John B. Gooch, Ted Kloss, Othe McCullum, R. K. Lean, F. J. Reynolds, Linwood G. Wilkins, Robert DeMund, Philip Peterson, Robert C. Brown, R. T. Buephone, George S. McKnight, Jr., Mr. and Mrs. J. J. O'Brien, Mr. and Mrs. W. E. Brawn, J. C. Mooney, W. S. Kumblad, F. M. Wiles, George E. Niles, F. T. Barrows, M. A. Busfield, Asheson S. Harden, Paul A. Donaghy, Robert D. Carter, J. K. Van Brunt, J. M. Johnston, Elmer E. Daggy, J. Fife Wright, Mr. and Mrs. Fred Gibbs, Mr. and Mrs. C. Hugo Berginan, Howard M. Hall, William Woodman, H. Richard Stevens, Fred W. Bradley, Frank S. Whitman, Ralph E. Thompson, Vincent A. Carpano, Hervert S. Leonard, Mr. and Mrs. Donald M. Hall, Mr. and Mrs. H. P. Gregory, Louis F. Loutrel, Jr., G. A. Day, Mr. and Mrs. Norman I. Bearse, Clifford M. Meyers, J. E. Larkin, James L. Dean, Jr., T. A. Webber, R. C. Macvin, George A. Engert, Mr. and Mrs. K. L. Moses, H. William Kngler, George L. Hystram, Mr. and Mrs. J. G. Bullard, Wilfred V. Torrey, Fred B. Aherson, John H. Loomis, E. M. Battey, Oliver F. Lane, William Thompson, H. D. Bainbridge, Mr. and Mrs. H. P. Waldenmyer, David H. Taylor, Mr. and Mrs. W. E. Wentworth, J. F. Cronin, Mr. and Mrs. E. L. Lamb, Mr. and Mrs. O. F. Hutchinson, Mr. and Mrs. J. F. Senuta, Mr. and Mrs. E. M. Archer, Mr. and Mrs. Paul H. Mueller, N. E. Dupee, Jr., Mr. and Mrs. Arthur Holbrook, Mr. and Mrs. P. S. Bolton, Mr. and Mrs. Henry Press, Mr. and Mrs. Donald M. Parrish, Clarence K. Genge, W. D. Stroud, J. J. Aid, Mr. and Mrs. Lester Crouse, Mr. and Mrs. Earl W. Diemer, Paul L. Haggerty, Mr. and Mrs. Charles S. Horton

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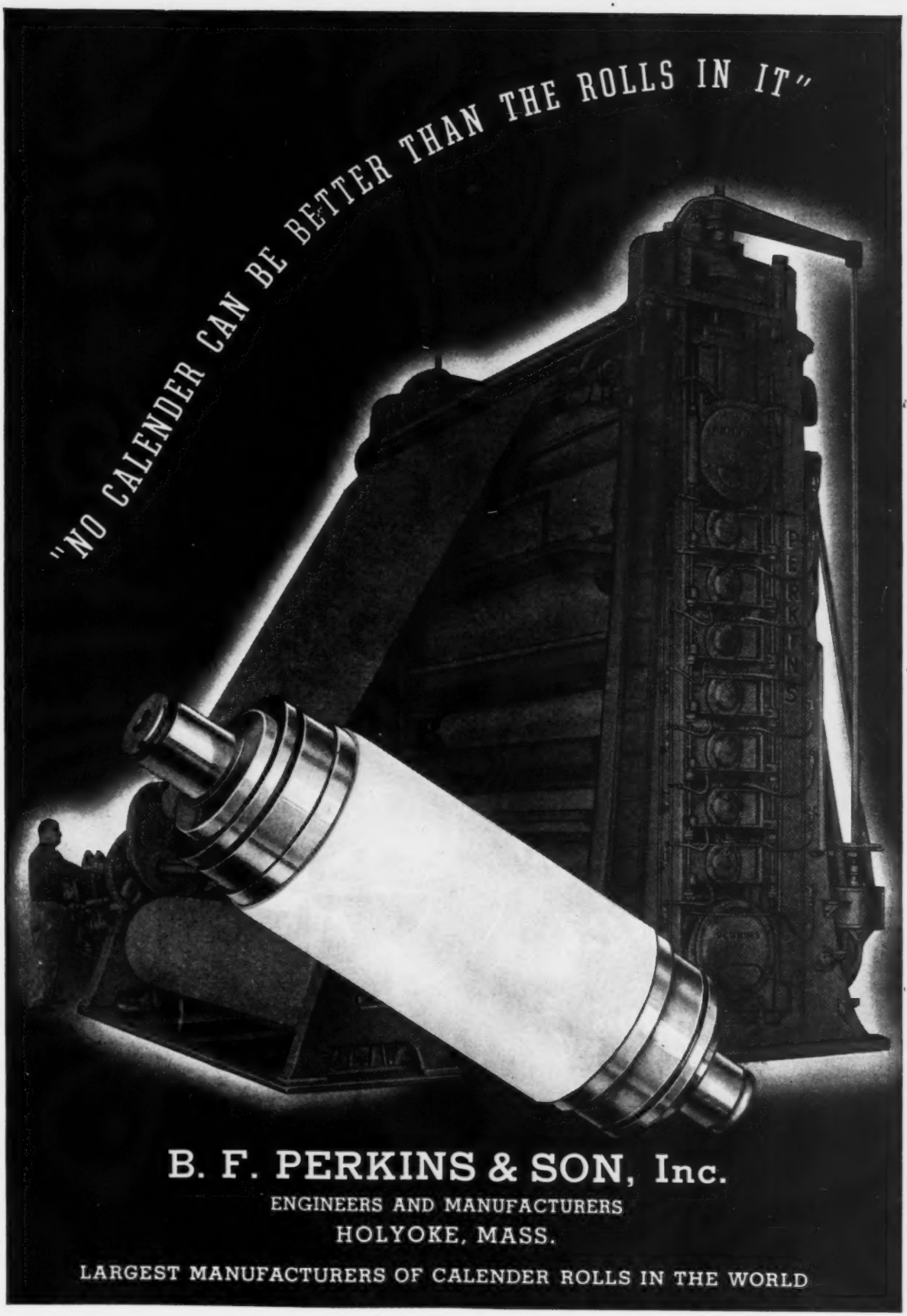
The recognized standard of Quality Pigments for The Paper Industry

THE CHEMICAL & PIGMENT COMPANY

Division of
The Glidden Company

BALTIMORE, MD. COLLINSVILLE, ILL.
OAKLAND, CALIF.

"NO CALENDER CAN BE BETTER THAN THE ROLLS IN IT"



B. F. PERKINS & SON, Inc.

ENGINEERS AND MANUFACTURERS

HOLYOKE, MASS.

LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

DIGESTED

Under present conditions, it is imperative that newspaper publishers maintain a substantial emergency inventory to cope with possible embargoes, strikes, fires, etc. A small portion of shipments received by the Peoria Newspapers, Inc. is set aside for such an emergency supply. Present indications are that it will be necessary to continue limited rationing of advertising space throughout 1947. All advertisers—local, display, national, and classified, are assured that this rationing will be handled on an equitable basis. No firm or individual will be denied the use of the advertising columns of Peoria Newspapers for advertising which conforms to established standards; but as long as newsprint paper is limited, advertisers will be asked to share in a fair distribution of available space.

During the war, shortages were generally accepted as necessary to the cause of victory, but many of these shortages have continued into 1947. Unfortunately, newsprint paper falls into that category. You, our advertisers, have been most sympathetic and cooperative thruout this entire period, but we do feel that from time to time you are entitled to a complete report and a clear explanation of the newsprint situation.—*From a report to advertisers by Peoria Newspapers, Inc.*

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1947		Corresponding Weeks—1946	
May 10	107.9	May 11	102.8
May 17	105.3	May 18	98.3
May 24	105.1	May 25	99.2
May 31	105.6	June 1	96.3
June 7 (Revised)	106.7	June 8	104.0
June 14	*108.1*	June 15	104.0

COMPARATIVE MONTHLY SUMMARIES

1946						1947	
Jan.	94.7	June	104.6	Nov.	105.5	Jan.	102.1
Feb.	98.4	July	94.0	Dec.	97.0	Feb.	105.9
Mar.	104.4	Aug.	104.7			Mar.	106.1
Apr.	102.7	Sept.	101.3			April	105.1
May	100.7	Oct.	106.4	Year Avg.	101.1	May	*106.2*

COMPARATIVE YEARLY SUMMARIES

	1940	1941	1942	1943	1944	1945	1946	1947
Year to Date	86.8	93.1	99.7	88.8	88.6	88.9	100.2	*105.5*
Year Average	85.6	97.4	90.4	87.8	88.1	89.4	101.1	

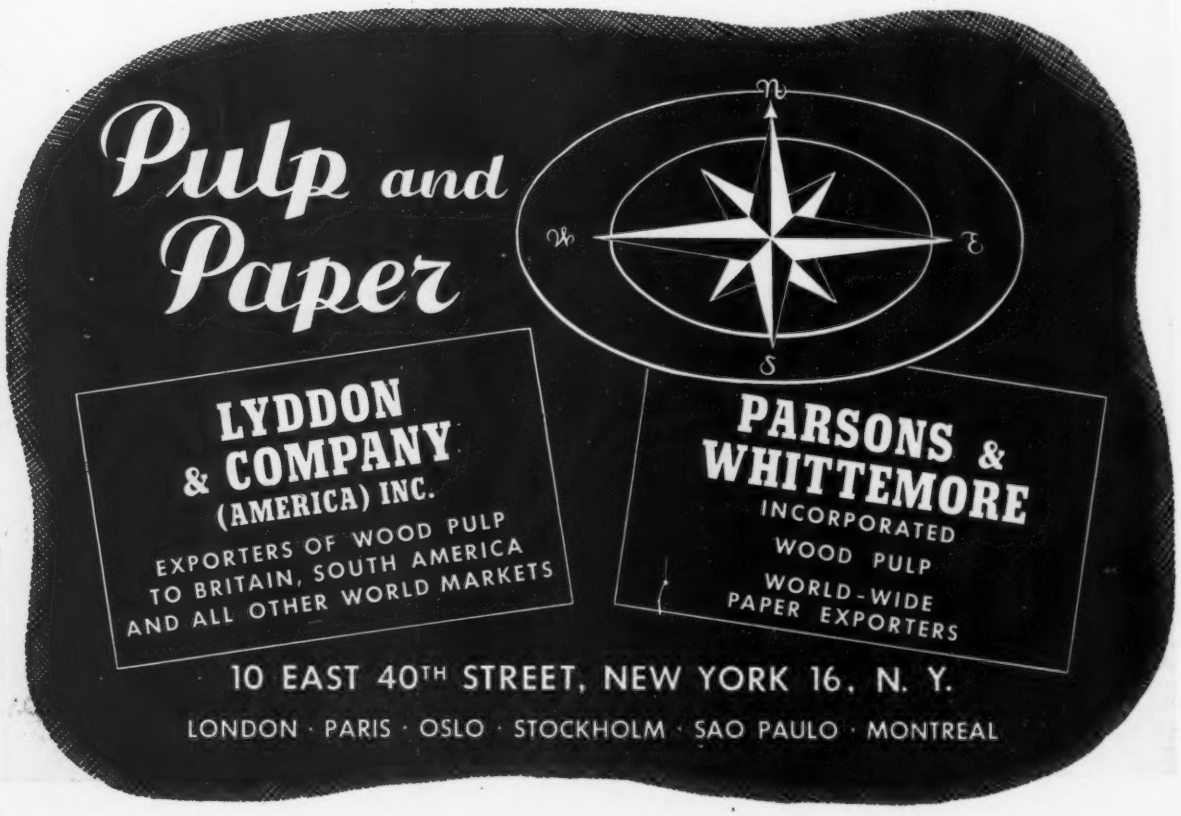
PAPERBOARD OPERATING RATIOS†

Current Weeks—1947		Corresponding Weeks—1946	
May 10	101	May 11	97
May 17	102	May 18	92
May 24	101	May 25	93
May 31	98	June 1	85
June 7	98	June 8	96
June 14	*103*	June 15	98

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1946	90	91	100	99	94	97	89	99	96	100	99	92	96
1947	99	103	101	100	*101*								

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.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LYDDON & COMPANY (AMERICA) INC.
EXPORTERS OF WOOD PULP TO BRITAIN, SOUTH AMERICA AND ALL OTHER WORLD MARKETS
PARSONS & WHITTEMORE
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EDITORIAL

No Politics

Though the full implications of any changes in the labor-management relationship that may lie ahead, following Congressional action this week, are still to be evaluated, the pulp and paper industry may expect that its own experience in problems of this character will keep it aloof from pressures. Only the other day a man at the head of his own business in a highly organized industry expressed his amazement at an incident recorded in these pages a few weeks back. It was one of those cases—there have been so many that specific identification is not needed—where a whole group of unions and a whole group of mills had adjusted their differences and compromised their viewpoints, signing a new contract within a few days.

It is no news to the pulp and paper mill man that production must go on. The insistence of orders is enough to remind him of that need, if he ever tended to forget it. It is no news to the employe that living comforts and security depend on continuous production. On that ground management and labor have found the best of all meeting places. Each side of the equation may have viewpoints of its own, bearing no relationship to the fellow on the other side except to differ with him, perhaps. But almost always there has been every disposition to get together without delay and get the new terms agreed upon as soon as may be possible. In the solutions of its labor-management problems the pulp and paper industry may have met discomfort; it has been able, fortunately, to avoid the distresses of politics.

Time and Money

It does us good once in a while to be brought up sharply to attention with a crisp phrase that seems to leap from its context and settle itself naturally into a quite different problem. That was the experience of a paper man who heard W. E. Griswold declare that "nothing just happens" in the course of a talk for the Lithographic Technical Foundation before the ANPA mechanical session at Chicago earlier this month. He might have been talking about how the forests disappeared from some areas of our states. He might have been talking about the size of the task involved in getting them back into those areas in sizes and quantities suited to the demand. Or, he might have spoken about the problem of bringing demand and supply into something of an equable relationship. Because he went on from that statement to tell what it takes to make something happen.

It takes manpower, facilities and funds to do a worthwhile job. And starting such a job with funds that are below the minimum is dangerous. It takes a certain amount of money to provide administrative and supervisory personnel and operating facilities before the right number of well qualified research men can be put to work on the necessary work of an industry.

It takes real time and effort of leaders of the industry who can detach themselves from their own business and their communities to help determine what research work should be done and to give it the proper priority and also the guidance to keep it on the track toward the main goal.

It takes time and money to establish clear policies, aims and objectives and responsibilities, and proper committees and sub-committees to hold an organization together, agreed to and believing in the programs.

Displaced Persons

More than one section of industry will watch with considerable interest developments in Canada's attempt to increase its manpower. Though representatives of organized labor have declared they will oppose the movement, on the grounds that there are plenty of unemployed lumber workmen, three big Ontario companies identified with pulp and paper have sent emissaries abroad to select some 1400 men from among displaced persons in Europe to be brought to the bush of northern Ontario. In this they are following an example set by another industry which imported Polish girls to man the machines of a textile mill.

The scheme to bring 1400 workers from European camps to Ontario for work in the bush was disclosed recently in Parliament at Ottawa by federal Labor Minister Mitchell, while the companies issued a joint statement in Toronto giving further details. The companies who worked out the labor plan with the federal labor department are the Spruce Falls Power and Paper Company at Kapuskasing, the Abitibi Power and Paper Company at Toronto and the Great Lakes Paper Company of Fort William.

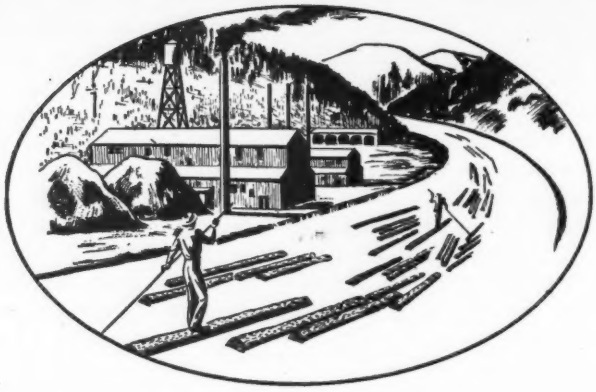
They have guaranteed to provide employment for the immigrants for a minimum of ten months, and will pay wages and provide conditions of employment and accommodation at the same standards as prevail for bushmen in the areas where the immigrants will be working.

President Bruce McLure of the Lumber and Sawmill Workers Union has said the union would oppose entry of Europeans for bush work, saying "we have thousands of unemployed lumber workers in this district now due to seasonal lay-off."

The paper companies' statement however said the movement would "help solve the serious shortage of bush workers. The first contingent of immigrants is expected to reach Canada at an early date.

W. L. Cook EDITOR

How to
GET THE MOST FROM YOUR PULPWOOD



Use groundwood pulp bleached by the

Du Pont Peroxide Bleaching Process

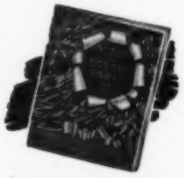
in your paper furnish

There *is* a solution to today's problem of stretching pulpwood reserves and maintaining high quality. It's the Du Pont Peroxide Bleaching Process. Here's how it helps:

First, by making groundwood, you can approximately double the fiber yields obtained by the usual chemical pulping processes and can get more pulp to put into paper.

Second, by bleaching the groundwood with the Du Pont process, you can get papers of the same brightness at *lower* cost, brighter papers at no added cost; and still better papers at only *slightly* higher cost. Depending on the properties and qualities required in the finished paper, you can use to good advantage up to 60% of bleached groundwood in your paper furnish.

Du Pont Technical Service Men will assist you in planning, installing, operating and maintaining such a system to meet your specific requirements. Write today for our booklet "More and Better Paper from the Woodpile" or for further details. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.



DU PONT PEROXIDES

For Groundwood Bleaching

DU PONT

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

"SOLOZONE"
sodium peroxide.

"ALBONE" 35
35% hydrogen peroxide.

SECTION OF THE

TECHNICAL ASSOCIATION
OF THE PULP AND PAPER INDUSTRY

122 E. 42nd ST., NEW YORK 17, N. Y. Edited By R. G. MACDONALD, Secretary

Preparation of Magnesium-Oxide Standard For Spectral Reflectivity*

TAPPI Tentative Standard T 633 m-47

The smoke from magnesium (Mg) freely burning in air, deposited on a satisfactory base, forms a uniform, fine-grained, diffusing surface of high reflectance. This surface of magnesium oxide (MgO) may be made reproducible; hence, it serves as a convenient and reliable primary standard for measuring spectral reflectivity. MgO is a good diffuser and its light reflectance is 97 to 98%. The apparent reflectance for 45° incidence and normal viewing (standard conditions adopted by the International Commission of Illumination, Cambridge, 1931) is 1.00. The reflectance varies with wave length in the visible spectrum by less than 1% when the oxide is first prepared. Although the reflectance is apparently constant with time between 550 and 750 mu., it decreases at wave lengths less than 550 mu; this may amount to as much as 3% in the violet, and causes the oxide to become slightly yellower with time. A MgO standard should therefore be discarded after a few hours of use.

Note: For Spectral Reflectivity of Paper, *see* Standard T 442 m; for Spectral Reflectivity of Pulp, *see* Standard T 216 m.

Materials

1. *Magnesium.* The magnesium should have high purity and be either in the form of turnings approximately 0.02 inch thick and ⅛ inch wide, preferably of spiral shape, and containing a minimum of magnesium dust; or in the form of magnesium ribbon 0.006 inch thick and ⅛ inch wide. "Radio grade" magnesium is recommended as having the highest purity.

2. *Base Surface.* The MgO must be deposited on a base surface not affected in air by the heat from the burning magnesium. A satisfactory base may be made of depolished aluminum or block porcelain. A hollow tray-like structure is recommended, with a flat surface and a rim 1 to 1.5 mm. high. The rim prevents the edges of the MgO coating from chipping off.

Note: Depolished surfaces are better than polished because the oxide adheres better; for the same reason, metallic surfaces are usually to be preferred to non-metallic. Surfaces of reflectance high and uniform throughout the spectrum are better than dark or chromatic surfaces because with the former a thinner layer of MgO is trustworthy. The thinner layer is desirable, apart from speed of preparation, because it does not chip off so readily.

3. *Combustion Disk* (for use with Mg turnings). A refractory disk to hold the burning magnesium, about 4 inches in diameter and 1 inch thick with a recess in the top face and, if desired, vent holes through the disk. Zirconium silicate and magnesium carbonate (magnesite) are suitable refractories from which to make the disk.

Procedure

Coat the base surface by exposing it to fumes of burning magnesium. Place the base surface to be coated about 8 to 10 cm. (3 to 4 inches) above the flame and tilted about 30° from the horizontal. Use of smaller distances results in a coarse-grained deposit and risks contamination by possible impurities in the magnesium. The flame of the burning magnesium should not be allowed to "lick" the oxide surface.

Move either the combustion disk or the surface base being coated from side to side in order to obtain a uniform deposit.

Repeat the operation several times until a sufficient deposit is obtained. The layer should be so thick that further increase produces no sensible change in reflectance; the critical thickness is about 0.5 mm. Repeated deposits of thin coatings rather than the full half-millimeter deposit at one time is recommended Do not attempt to burn a large charge of magnesium at one time; rather, build up the required thickness by a large number of small charges. In cases where it is inconvenient to measure the thickness of the coating, place a small dot of India ink on the original surface near the edge, then deposit oxide until the spot cannot be seen in good illumination. If the original surface is dark, put on one coat of MgO first; a deposit of black smoke (from a candle or smoky gas flame), in a small spot near the edge, supplies a similar test.

The operation should be carried out under a well ventilated hood in order to dispose of the excess oxide. However, the current of air should not be sufficiently great to disturb either the flame or the stream of smoke arising from the flame. The air of the room in which the coating is done should be as free as possible of dust and vapors.

The operator's eyes should be protected from the high intensities of visible and ultraviolet radiant energy by suitable goggles or other means.

Magnesium ribbon is preferred for small surfaces

* This method has been approved as a tentative standard by the Optical Properties Committee. Criticisms are earnestly requested and should be sent to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 E. 42nd St., New York 17, N.Y. Reprints of this standard may be obtained from the Secretary at 25 cents each.

employed in standardization; however, where large surfaces are to be coated, Mg turnings are preferred. The burning is accomplished as follows:

(a) RIBBON.

Cut the magnesium ribbon in a number of 10-inch lengths. Holding one end of a length of ribbon in pliers, wipe the ribbon with a freshly laundered cloth to remove surface impurities. Ignite the free end with a Bunsen burner, and hold the ribbon in an approximately horizontal position under the surface to be coated, moving it or the ribbon so as to get an even coating. When the ribbon has burned to a point within about 1 inch of the pliers, drop it upon a metal or refractory surface below the work. Burn additional lengths of ribbon until the coating process is completed.

(b) TURNINGS.

Place about 5 grams of the turnings on the refractory disk and ignite them with a hand blow torch or Bunsen burner. Work the unignited turnings beneath the flame until a slowly burning ball or clinker is formed; this gives a steady stream of smoke. When the stream of smoke is steady, introduce into it the base surface to be coated and complete the coating as previously described. When the clinker has to be turned over or broken, in order to permit the magnesium to burn completely, the surface being coated should be temporarily removed, since the burst of flame is likely to carry up large dust particles.

Additional Information

It is often desirable to use secondary working standards of reflectance calibrated in terms of the freshly prepared MgO. White enameled-iron panels, blocks of opaque structural glass, glazed tiles, and other ceramic bodies have proved useful as rugged and reasonably permanent working standards of diffuse reflectance.

Although MgO is almost universally cited as the primary standard of directional reflectance, it is known to be subject to some variation from one preparation to another. It is not certainly known what causes this variation. Between different panels prepared in as close accord as possible with the standard procedure, there are differences which are small, but nevertheless measurable. They are apparently not attributable to impurities in the Mg, because differences may frequently be found between two panels prepared with the same Mg.

Chief suspicion has been directed to compounds of Mg and nitrogen (N) in the MgO. Where insufficient oxygen has access to the Mg at the time of burning, some of the Mg apparently combines with N to form compounds that are somewhat yellowish. The burning of large chunks of Mg should therefore be avoided. Yellowing is found to be greater with rapid burning of Mg than with slow burning.

Because of this variability of MgO, it is recommended that a number of freshly deposited surfaces be evaluated against a working standard such as a polished block of white Vitrolite structural glass. Thus, faulty panels will be readily detected by comparison and discarded. Furthermore, if the working standard is carefully preserved, its calibration relation to freshly prepared MgO will gradually increase in reliability until it will serve as a direct check on the preparation of the MgO standard.

Reference

"Preparation and Colorimetric Properties of a Magnesium Oxide Reflectance Standard," National Bureau of Standards *Letter Circular* LC547.

TAPPI Notes

W. M. Ebersole, formerly technical supervisor, St. Joe Paper Co., Port St. Joe, Fla., is now pulp mill superintendent of the Macon Kraft Corp., Macon, Ga.

Charles P. Kirchen, formerly technical service engineer, American Cyanamid Co., Mobile, Ala., is now with the Buckman Laboratories, Inc., Memphis, Tenn.

R. E. Griggs is now with the Industrial Division of the General Electric Co., 570 Lexington Ave., New York, N. Y.

Joseph F. Teti has recently been appointed vice president of the P. L. Andrews Corporation, Brooklyn 27, N. Y.

Peter B. Borlew, formerly assistant research director, Nekoosa Edwards Paper Co., Port Edwards, Wis., and lately of Field Information Agency Technical (FIAT) in Germany, has been appointed Senior Technologist with the Pulp and Paper Subsection of the American Military Government for Germany. While in Germany he has served as the U. S. representative on the Interallied Commission for the Level of the Pulp and Paper Industry. His mailing address is now:—Pulp and Paper Subsection, Economics Division, OMGUS, APO 742, c/o Postmaster, New York, N. Y.

Y. S. Chaudhary, general manager of the U. I. C. Paper Mills, Ltd., Lucknow, U.P., India, is visiting in the United States.

Charles F. Dwinal, Jr., formerly research engineer, Johns-Manville Corp., Manville, N. J., is now quality control supervisor at the Tilton, N. H., factory.

S. Earll Church, formerly research chemist, Resinous Products & Chemical Co., Philadelphia, Pa., is to become an instructor in pulp and paper at the New York State College of Forestry, Syracuse, N. Y.

Fundamentals of Plastics

The McGraw-Hill Book Company recently issued a book on the Fundamentals of Plastics, by H. M. Richardson, consulting engineer and J. Watson Wilson of Yale University (483 pp. 6 x 9). The purpose of the book is to give students a broad view of the plastics industry to serve as a background for more detailed study.

The first part deals with certain fundamentals regarding the relationship of chemical structure to physical properties. The second section discusses the six classes of plastics, denoting a chapter to each major group. The third section covers the commercial methods used in the manufacture of plastic products, and the fourth section deals with the evaluation of plastics, including their measurement and manufacturing control. Each of the 22 chapters is written by a specialist in the field.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $5.00 per copy.

Bleaching Pulp with Mixtures of Chlorine Dioxide and Chlorine*

By G. P. Vincent[1]

Abstract

The use of mixtures of chlorine and chorine dioxide obtained from a chlorine dioxide generator for bleaching sulphate pulp to exceptionally high brightness with retention of strength is described. Comparative results on northern, southern, and Swedish sulphate pulp with chlorine-chlorine dioxide mixture, pure chlorine dioxide, and hypochlorite are discussed. Conclusions are that a mixture of chlorine and chlorine dioxide is equivalent in results to pure chlorine dioxide and in addition brings about operating economies. Hypochlorite bleanching shows, as would be expected, excessive degradation in final bleaching stages compared with the use of a chlorine dioxide solution with or without chlorine.

It is pointed out that the production of a mixture of chlorine and chlorine dioxide is more economical per unit weight available chlorine than the production of pure chlorine dioxide.

Cellulose chemists have long known the advantages of chlorine dioxide as a bleaching agent. Like bleaching with activated chlorite, which has found many important applications in the textile field and certain specialized applications in the paper pulp field, bleaching with chlorine dioxide gas achieves high brightness levels with substantially no loss of strength and with high pulp yields. Also, as with sodium chlorite, the use of the gas makes unnecessary the careful operating controls required by other bleaching processes.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., Feb. 24-27, 1947.

[1] Tech. Director, Mathieson Alkali Works, Inc., New York, N. Y.

For some time the Mathieson laboratories have been conducting comparative studies of the effects of chlorine dioxide and of mixtures of chlorine dioxide and chlorine on various pulps. It was reasoned that the use of the mixed gases would effect economies over the use of either activated chlorite or pure chlorine dioxide and thus prove advantageous for large scale pulp bleaching.

Extensive laboratory work has demonstrated that certain mixtures of the two gases have bleaching properties which are equivalent to or slightly better than those of chlorine dioxide alone. Flash bleaching to high brightness levels and excellent strength retention are achieved. The chlorine in the chlorine dioxide-chlorine mixture, when kept within the investigated range of proportions, has none of the degrading effects usually associated with conventional hypochlorite or chlorine bleaching. The presence of chlorine, in fact, while not affecting the strength of the pulp, appears to give additional improvement in the brightness levels reached. The results of bleaching with a mixture of chlorine dioxide and chlorine are also in marked contrast with results obtained from the conventional hypochlorite treatment, which seriously reduces pulp strength while seldom attaining the same high brightness levels.

Bleaching Kraft Pulp

The experiments were carried out on three types of commercially bleached kraft pulp; northern, southern and Swedish. Bleaching was studied at pH's of 6, 8, and 9. Since brightness levels and strength retention were approximately the same at

TABLE I.—NORTHERN KRAFT—5% CONSISTENCY, 1.0% AV. Cl_2 APPLIED, pH 9.0, 100° F.

Bleach Time, minutes	Mixed Gases		Chlorine Dioxide		Hypochlorite	
	G.E. Brightness	Viscosity, cp.	G.E. Brightness	Viscosity, cp.	G.E. Brightness	Viscosity, cp.
0	70.0	42-43	70.0	42-43	70.0	42-43
10	82.4	41.8	81.9			
20	83.0	40.4	82.4			
30	83.3	40.7	83.0	40.3	80.4	31.9
60	83.6	39.8	83.2	40.1	80.8	28.0
90	84.0	39.1	83.3	39.8	81.2	26.1
120	84.3	38.0	83.4	...	81.6	23.4

TABLE II.—SOUTHERN SLASH PINE KRAFT—5% CONSISTENCY, 1.0% AV. Cl_2 APPLIED, pH 9.0, 100° F.

Bleach Time, minutes	Mixed Gases		Chlorine Dioxide		Hypochlorite	
	G.E. Brightness	Viscosity, cp.	G.E. Brightness	Viscosity, cp.	G.E. Brightness	Viscosity, cp.
0	68.5	30.5	68.5	30.5	68.5	30.5
10	77.7	28.3	77.9	28.7		
20	78.3	28.7	78.5	28.2		
30	78.4	28.2	79.3	28.1	77.3	25.8
60	79.7	26.7	79.2	28.1	78.4	23.8
90	79.6	27.2	79.4	27.2	78.6	23.6
120	79.6	26.1	79.5	27.2	79.6	22.4

TABLE III.—NORTHERN KRAFT—5% CONSISTENCY, 1.5% AV. Cl_2 APPLIED, pH 9.0, 100° F.

Bleach Time, minutes	52% Cl_2 (2.5:1 Av. Cl_2 Ratio)		72% Cl_2 (1:1 Av. Cl_2 Ratio)		Hypochlorite	
	G.E. Brightness	Viscosity, cp.	G.E. Brightness	Viscosity, cp.	G.E. Brightness	Viscosity, cp.
0	70.0	42-43	70.0	42-43	70.0	42-43
10	82.1	42.8	82.1	42.0		
20	82.6	42.9	83.0	40.1		
30	83.3	40.6	83.2	40.0	80.3	30.0
60	83.9	40.9	83.7	38.0	81.6	25.6
90	84.1	39.0	84.5	35.9	82.0	22.4
120	84.3	39.3	84.7	35.7	82.0	20.5

these three pH conditions, pH 9 was chosen as the preferred condition, in order to avoid corrosion difficulties.

For most of the experiments, the chlorine dioxide-chlorine mixture contained 52% chlorine on a weight basis, or 2.5 parts of chlorine dioxide to 1 part of chlorine on an available chlorine basis. In one set of experiments, however, the chlorine content was increased to 72% by weight, giving a 1:1 mixture of chlorine dioxide and chlorine on an available chlorine basis.

Viscosity (expressed in centipoises) was used as an indication of change in the strength properties of the pulp because viscosity tests give more consistent results than are obtained from burst and tear tests. Tests correlating viscosity and strength show the following; A change in viscosity of approximately 4 points gave a change in burst and tear of zero to 2%, which is close to the experimental error of these tests, while a change in viscosity in the neighborhood of 15 points was acompanied by a 5 to 10% decrease in burst and an 8 to 10% decrease in tear. It is safe to

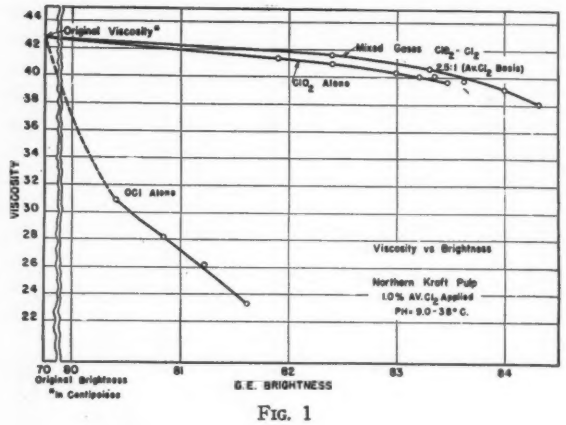


FIG. 1

conclude, therefore, that any inconsistency between the relationship of strength and viscosity on high bleached pulps is well within the limits of experimental error of pulp strength determinations.

This pulp was a Northern Kraft, commercially bleached to a G. E. brightness of 70.0 having a bleach demand of about 0.6% and a cuprammonium viscosity of 42 to 43 centipoises. Large samples of this pulp were bleached under controlled conditions of pH (9), temperature (100° F.) and pulp consistency (5%). Comparative bleaches were carried out with solutions of hypochlorite, chlorine dioxide, and a mixture of chlorine dioxide and chlorine in a ratio of 2.5:1 on an available chlorine basis. In one set of experiments the total available chlorine applied was 0.5%, based on the moisture-free weight of the pulp, and in another 1% was used. Pulp samples were taken at bleaching time intervals of 10, 20, 30, 60, 90, and 120 minutes.

The effects of the three methods of bleaching may be compared by studying Table I. The results obtained when 0.5% available chlorine was applied were found to be very similar to those obtained from the application of 1.0%, which are the figures given here. The application of the mixed gases gave essentially the same excellent strength retention with somewhat better brightness and rate of bleaching than was obtained from the use of chlorine dioxide alone. As the table shows, the mixed gases gave a brightness level of 84.3, an increase of 14.3 G. E. units, with a viscosity loss of 4 to 5 units, or about 10%. Chlorine dioxide alone gave a G. E. brightness of 83.4, an elevation of 13.4, and a viscosity drop of 2 to 3 units. As would be expected, conventional hypochlorite bleaching did not achieve the same brightness elevation, giving a result of 81.6 G. E. units, while the viscosity dropped drastically, about 19 units. Figure 1 compares the viscosity vs. brightness curves from this set of experiments and shows the results described above.

Another characteristic of chlorine dioxide bleaching which is retained when mixed gases are used is its rapid rate of bleaching. As may be seen from Fig. 2 (brightness vs. time), the first 10 minutes of bleaching time accomplish the major part of brightness elevation, as contrasted with the slow bleaching rate of hypochlorite. There is, in fact, a flash bleach.

Since it seemed possible to effect even further economies by increasing the proportion of chlorine in the gas mixture, another set of experiments was run on this same kraft pulp. In this instance, the chlorine constituted 72%, by weight, of the gas mixture, which was 1:1 on an available chlorine basis. The results showed that even with this gas mixture a satisfactory protective bleach was obtained, an indication of the flexibility of the mixed gas bleaching process. Even when the total available chlorine applied was 1.5%, equivalent results were obtained, as may be seen from Table III and Fig. 4, which compare brightness and viscosities obtained from the application of mixed gas in a 2.5:1 ratio with those obtained when the 1:1 gas mixture was used, and with those obtained from the application of a hypochlorite bleaching stage. These curves indicate that an increase of chlorine in the mixture from 52 to 72% by weight, under the conditions described, has very little harmful effect upon the strength of the pulp, especially when compared with the degradation resulting from a hypochlorite bleach carried out under similar conditions.

Bleaching of Southern Kraft

A similar comparative study was applied to a commercially prepared semi-bleached southern slash pine kraft, of initial G.E. brightness of 68.5, having a viscosity of 30.5 and a bleach demand of about 0.6%. From Table II it may be seen that the results are much the same as those obtained on northern kraft. Figure 3 indicates the equivalent viscosity vs. brightness curves obtained by the application of pure

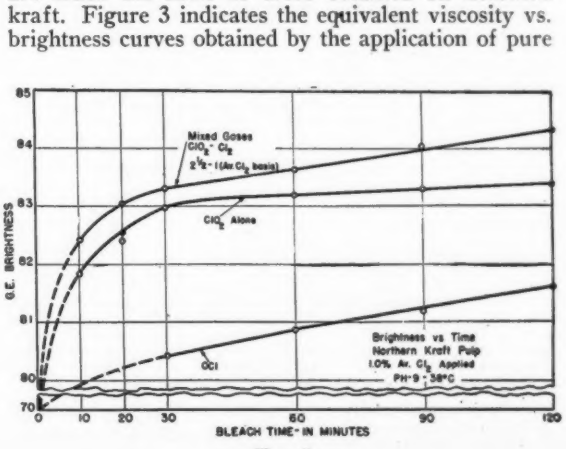


FIG. 2

chlorine dioxide, a mixture of chlorine dioxide and chlorine, and the conventional hypochlorite bleach.

Bleaching of Highly Refined Swedish Pulp

In addition to the above some work was done to study the comparative effects of pure chlorine dioxide and a mixture of this gas with chlorine when applied as a final stage to a more highly refined and bleached kraft pulp. For this purpose there was used a Swedish kraft pulp, which had been commercially bleached to a G.E. brightness of 82.7. Under a variety of bleaching conditions, it was concluded that the mixed gases gave results at least the equivalent of those obtained through the use of chloride dioxide alone. At a pH of 8, the mixed gases in concentrations of 0.5% available chlorine on the weight of the pulp (ratio 2½ ClO_2 to 1 Cl_2, available chlorine basis) gave a G. E. brightness value of 86.1. The burst test gave a value of 68.1 (original was 67) and the tear test gave a value of 70 (original was 57). The achievement of such a high brightness level with excellent strength retention on a kraft pulp is an indication of the value of the mixed chlorine dioxide-chlorine gas as a bleaching agent for this type of pulp.

Conclusion

In general, the use of mixed gases is at least as effective as the application of chlorine dioxide alone in giving high brightness levels with substantially no strength loss.

A valuable aspect of the mixed gas bleaching

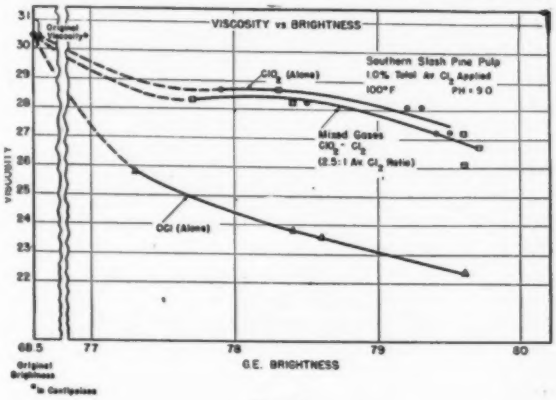


FIG. 3

process is the lack of necessity for careful operating controls, since satisfactory results have been obtained over a fairly wide range of pH, temperature, per cent of total available chlorine applied, and proportion of chlorine in the gas mixture. Another important feature of chlorine dioxide bleaching which is retained when the mixed gases are applied is the rapid bleaching rate of reaction, a factor which should result in greater bleaching capacity for conventional equipment.

Authors Notes

There are studies now under way which indicate that an economical and commercially practical method of generating the described mixtures of chlorine dioxide and chlorine may soon be available to the pulp bleaching field for use in large scale pulp bleaching.

Preliminary laboratory work also indicates that, in addition to its use as a final stage treatment, mixed gas bleaching may be applied following a conventional chlorination and sodium hydroxide extrac-

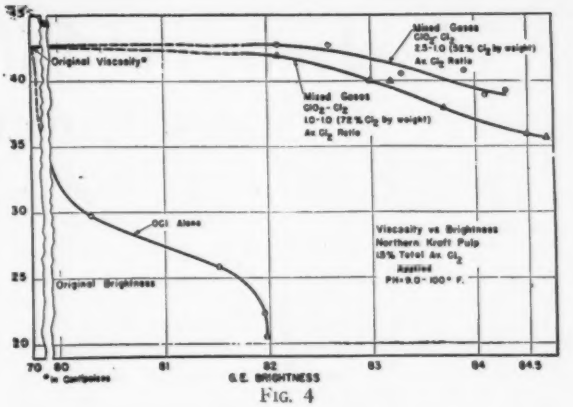


FIG. 4

tion stage. This would obviously reduce the number of operations required, thus simplifying bleaching procedures and effecting operating economies.

Technology of Adhesives

The Reinhold Publishing Company has recently issued "The Technology of Adhesives" by John Delmonte, Technical Director of the Plastics Industries Technical Institute, Los Angeles, Calif. (516 pp. 6 x 9).

As indicated by the author developments in adhesives have closely paralleled developments in high polymers. For some unexplained reason, adhesives have been deemed insignificant in comparison with the more colorful molded, laminated and cast plastics. However, from a quantitative standpoint adhesives rank well in comparison with these products.

Among the subjects covered are: classification of adhesives, phenolics, ureas and melamines, thermosetting resin adhesives, polyvinyls, polystyrenes and acrylics, rubbers, cellulose derivative adhesives, proteins, vegetable glues and natural resin, animal glues, sodium silicate, adhesives for paper, cloth, foils, and tapes and tests and specifications for adhesives.

Thermodynamics for Chemists

D. Van Nostrand Company, Inc. has just issued the second printing of "Thermodynamics for Chemists" by Samuel Glasstone, formerly professor of chemistry at the University of Oklahoma (522 pp. 6 x 9). The purpose of the book is to provide an introduction to the principles and applications of thermodynamics for students of chemistry and chemical engineering.

Although an elementary acquaintance with calculus is necessary to understand the text there are more than 100 numerical examples worked out and serve as a refresher in this subject. In treating the various topics the author has attempted to simplify the theories and show the practical applications. Some attention is given to statistical methods which are rapidly coming into general use by chemical engineers. Attention is given to calculations of energy and heat capacity, entropy relations, phase equilibria, thermochemistry, fugacity and activity, and properties of solutions.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $5.00 per copy.

Evaluation of Different Methods of Speck Counts in Paper*

By John H. Graff[1]

Abstract

An extensive study has been made of various methods which might be used in the determination of the speck count in paper. The largest number of specks and the largest area per square meter are obtained by using one 20-watt daylight fluorescent lamp with reflected light. An excessive amount of reflected light reduces the total number of specks observed because of glare and internal reflection. It may be desirable to vary the type of illumination (transmitted or reflected light), depending upon the ultimate use of the paper. When marking all the specks visible with a given illumination and a 14-inch chinrest, the number and the area of the specks per square meter are practically the same whether all the specks in the sheets or only those visible in selected 5- or 20-square inch sampling areas of each sheet are considered. A detailed frequency distribution of the specks by number or by area seems to be less important than the percentage distribution by number and by area of small, medium, and large specks. This considerably reduces the time required for direct measurement and analysis of the specks. The personal equation is considered and the time for making a speck analysis is estimated.

The cleanliness of a paper depends, to a large extent, upon the number of specks and the total area of these specks in a given area of paper. This so-called cleanliness also depends upon whether the sheet is examined by reflected or transmitted light, the kind of specks present in the paper, and their frequency distribution. It is of importance, therefore, that the method used for determining the number and area of specks in a given area of paper be standardized in such a manner that the speck count made by the producer and that made by the buyer of the paper are comparable, that the personal equation and the percentages of standard deviation are at a minimum, and that the time needed for a determination is within practical limits.

Adrian and Graff (*Paper Trade J.* 111, No. 19:32-40 (Nov. 7, 1940)) found that the kind and relative amount of light and the distance of the light from the sheet are important; that a minimum percentage probable error was obtained using an eyepoint 14 inches above the sheet; and that the speck box must be so constructed and placed that the speck count will not be influenced by external conditions.

Experiments

Based on this experience, the following experiments were carried out.

Two reams of the same lot of paper (mimeo bond, 18 lb. (17 × 22—500)) were thoroughly intermixed for the experiments.

Two operators were used for the purpose of determining the personal equation involved; for each experiment, ten sets of five sheets (8½ × 11 inches) each were used by each operator, so that the percentage standard deviation could be determined for 5, 10, and 25 sheets.

The Weyerhaeuser speck count box was arranged so that different types of illumination could be selected at will.

Experiment I

TAPPI Tentative Standard T 437 m-43 was used, with the exception that, instead of using a 50-watt Mazda lamp 48 inches above the sheet, a 40-watt Mazda lamp 38 inches above the sheet was used, which gave the same reflected light value as that recommended by TAPPI.

All specks with an "estimated equivalent black area" of 0.04 sq. mm. and up were marked and tabulated, using five sheets for each set. The total number of specks and the total area per square meter were obtained by multiplying the total average of the numbers and the total average area for five sheets by 3.3.

The estimated "actual area" of the same specks was determined, tabulated, and the number of specks and the total area per square meter were calculated as before. Finally, all the specks were cut out, dipped in distilled water, placed on a slide, and examined under the microscope at 50 diameters; the area was determined by measuring the long and the short diameters of the specks. At the same time, the specks were classified into the following groups: zero specks, resin, shives, knotwood, inner and outer bark, metallic specks, and miscellaneous.

However, as considerable time was required to cut out the specks and to make the microscopic measurements and the classification of all the specks, a modification of the sampling method of Simmonds,

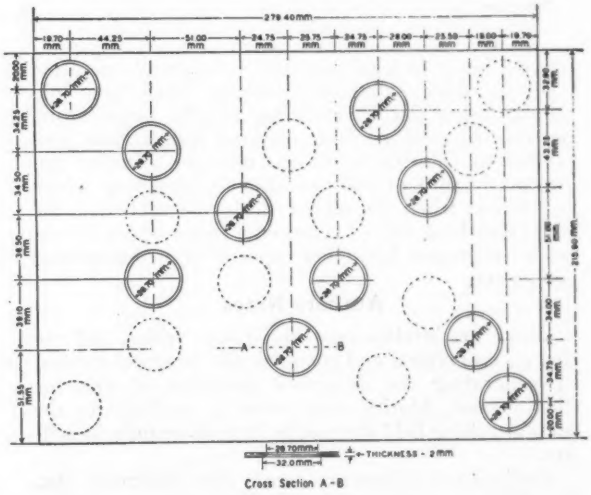


FIG. 1

Template for Area Sampling for Speck Count of 8.5 x 11 in. Sheets. Dotted circles show areas selected when sheet is reversed. Distance between holes only approximate

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., Feb. 24 to 27, 1947.

[1] Member TAPPI; Research Associate, The Institute of Paper Chemistry, Appleton, Wis.

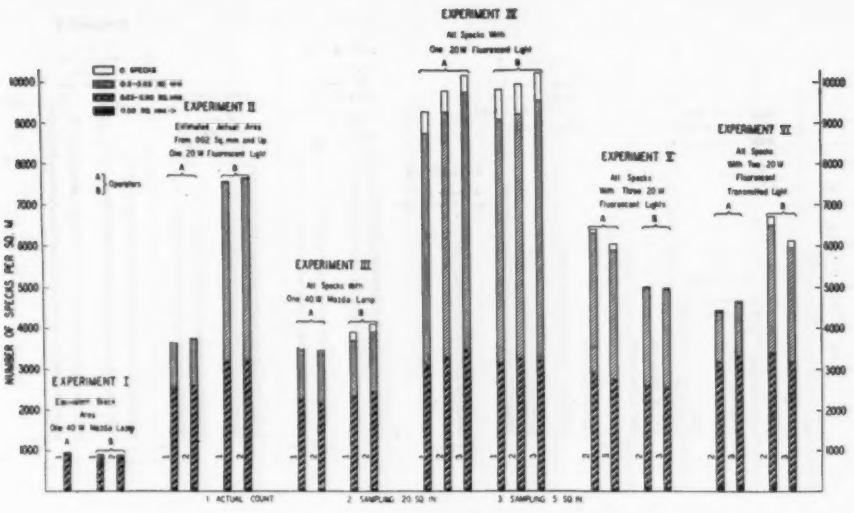


FIG. 2
Comparative Results of Number of Specks per Sq. M.

Billington, and Baird (*Paper Trade J.* 97, No. 4:40-42 (July 27, 1933)) was investigated.

A metal templet, like the one shown in Fig. 1, was designed to give selective sampling areas of 10 sq. in., which can be marked with a pencil. By turning the sheet on its long axis, ten sampling areas are obtained on the other side, without interfering with those of the first side.

Using this templet and the marked sheets of operator B, the specks in the twenty sampling areas were counted, cut out, measured, and classified under the microscope before the rest of the specks in these sheets were cut out for microscopic examination.

Using the sampling areas of 20 sq. in. of each sheet only, the total number and the area in square millimeters per square meter for each set of five sheets were obtained by multiplying the results by 30.86. The percentage standard deviation for 5, 10, and 25 sheets to the set was determined by the equation

$$\frac{\sqrt{\Sigma\ \delta^2/(N-1)}}{\text{Average}} \times 100$$

EXPERIMENT II

All the specks with an "estimated actual area" of 0.02 sq. mm. and up, were marked, counted, and tabulated, using a 20-watt daylight fluorescent lamp with reflected light.

The sheets were first marked, counted, and tabulated as before, using the TAPPI speck chart for the estimation of the actual area from 0.02 sq. mm. and up. From the marked sheets the specks of the selected 20-sq. in. sampling area of each sheet were counted, using the templet; they were then cut out, measured, and classified under the microscope.

EXPERIMENT III

All the specks visible in each sheet were marked and counted, using one 40-watt Mazda lamp with reflected light and a 14-inch chinrest.

After the total number of specks visible in each sheet were marked and counted, 20-inch sample areas were selected from each sheet as before and the specks were cut out, measured, and classified under the microscope.

EXPERIMENT IV

All the specks visible in each sheet were marked and counted using a 20-watt daylight fluorescent lamp and reflected light, with a 14-inch chinrest.

When the total number of specks visible in each sheet were marked and counted, 20-inch sample areas were selected from each sheet. Since it was of interest to know if the total sample area could be reduced still further, the five lower or upper 1-inch areas were selected, alternately on the wire and felt sides of the sheets, thus reducing the sample area to one quarter of the original. The alternate selection of the five sampling areas on the wire and felt side was necessary because experience had shown that 46% of the total speck count in this paper were visible on the wire side and 54% on the felt side.

The specks of the five sampling areas of each sheet were cut out, counted, measured, and classified, after which the fifteen other sampling areas of the sheet were studied. Using the sampling areas of 5 sq. in. for each sheet, the total number and the area in square millimeters per square meter for the five sheets were obtained by multiplying the results by 123.42.

EXPERIMENT V

As the four previous experiments showed that there was no practical difference in the number of specks per square meter when all the specks in the sheets were considered and when only those in the selected 20 sq. in. in each sheet were studied, the second method was employed in this experiment using three 20-watt daylight fluorescent lamps and reflected light, with a 14-inch chinrest. The marked specks were then cut out, measured, and classified under the microscope, and the results were calculated both for 5- and 20-inch sampling areas for each sheet.

EXPERIMENT VI

In this experiment the ten circular openings in the templet were cut out of an opaque black paper; this was then placed on the glass plate in the speck box, the sheets to be marked were placed on top of this black sheet, and all the specks in each circular opening were marked and counted, first on one side and then on the other, turning the sheet on its long axis.

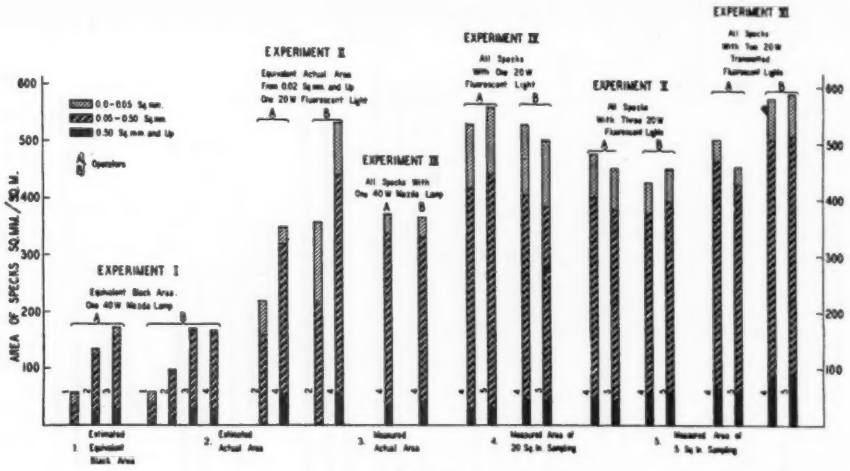


FIG. 3
Comparative Results of Area of Specks sq. mm./sq. m.

Two 20-watt daylight fluorescent lamps and transmitted light, with a 14-inch chinrest, were used for the markings. The marked specks were then measured and classified as before, both for 20- and 5-inch samplings for each sheet.

Number of Specks Per Square Meter

Table I and Fig. 2 show that the total number of specks per square meter obtained by the TAPPI method (experiment I) was less than 20% of the total number of specks observed in any of the other experiments and was less than one third the number of specks from 0.05 sq. mm. and up. Figure 2 also shows that, for practical purposes (but not considering the personal equation), the total number of specks per square meter was about the same for experiments II, III, V, and VI, and the total number of specks from 0.05 sq. mm. and up was, within the experimental error, the same in all the experiments, except experiment I.

The actual differences in the speck counts obtained in the different experiments are in the number of specks from zero to 0.05 sq. mm. The number of all the small specks observed is influenced by the type of illumination used and, to some extent, by the personal equation of the operator. The largest number of specks was obtained by both operators when using one 20-watt daylight fluorescent lamp and reflected light; with three such lamps and reflected light, the total speck count was about 40% less. The reason for this large reduction evidently is because the three lamps cause too much glare and internal reflection.

Figure 2 shows that operator B observed 50% more specks in experiment II in estimating the "actual area" from 0.02 sq. mm. and up; most of this large increase over operator A was in specks between zero and 0.05 sq. mm. Operator B observed a somewhat larger number of small specks in experiment VI but a smaller number in experiment V than operator A, using three daylight fluorescent lamps with reflected light. Both operators found a relatively small number of zero (imaginary) specks in proportion to the total number.

Figure 2 also demonstrates that there is practically no difference, within the experimental error, in counting all the specks in the sheets or in sampling 20 or 5 sq. in. of each sheet, selecting the sampling areas as shown in Fig. 1.

TABLE I.—COMPARATIVE RESULTS OF NUMBER OF SPECKS PER SQ. M.

Experiment	Operator A			Operator B		
	Actual Count	Sampling 20 sq. in.	Sampling 5 sq. in.	Actual Count	Sampling 20 sq. in.	Sampling 5 sq. in.
I	957	....	....	893	882	....
II	3645	3732	....	7552	7642	....
III	3502	3420	....	3896	4104	....
IV	9249	9776	10175	9787	9926	10187
V	....	6386	6042	....	4986	4973
VI	....	4398	4643	....	6906	6112

Area of Specks in Square Millimeter Per Square Meter

The relative area per square meter of the specks obtained in the different experiments is shown in Table II and Fig. 3. There is a considerable difference in the total area per square meter of the specks obtained by the "estimated equivalent black area" from 0.04 sq. mm. and up, the "estimated actual area," and the "measured area" of the specks in experiment I. There is also a considerable difference between the "estimated actual area" from 0.02 sq. mm. and up and the "measured area" of the specks in experiment II. In all, the other experiments, when all the specks visible at a 14-inch chinrest are marked, the total area of the specks from 0.50 sq. mm. and up is almost as large as or is larger than the total area obtained by the TAPPI method. However, there is no practical difference between the total area per square meter when all the visible specks are marked and when the 20 or 5 sq. in. of the sheets are sampled.

Percentages of Specks by Number and by Area

As would be expected from a wood pulp paper, Tables III and IV and Fig. 4 show that, with the ex-

TABLE III.—COMPARATIVE RESULTS OF PERCENTAGE BY NUMBER OF THE SPECKS

Experiment	0	Resin	Shives	Knotwood	Inner Bark	Miscellaneous
		Operator A				
I	...	83.00	10.00	3.06	2.79	1.15
II	...	74.30	6.43	0.91	15.95	2.41
III	1.22	85.92	4.56	0.74	6.10	1.46
IV	5.40	71.80	4.42	0.98	16.45	0.95
V	1.20	79.30	4.90	1.51	11.67	1.42
VI	0.26	93.77	1.71	1.31	1.57	1.38
		Operator B				
I	...	83.39	8.85	3.05	3.54	1.17
II	1.33	96.90	0.32	0.10	1.22	0.13
III	4.96	78.80	5.02	2.02	7.12	2.08
IV	7.34	70.00	5.00	0.82	15.60	1.24
V	0.25	85.96	3.46	1.08	8.17	1.08
VI	3.16	94.16	0.78	0.55	0.29	1.06

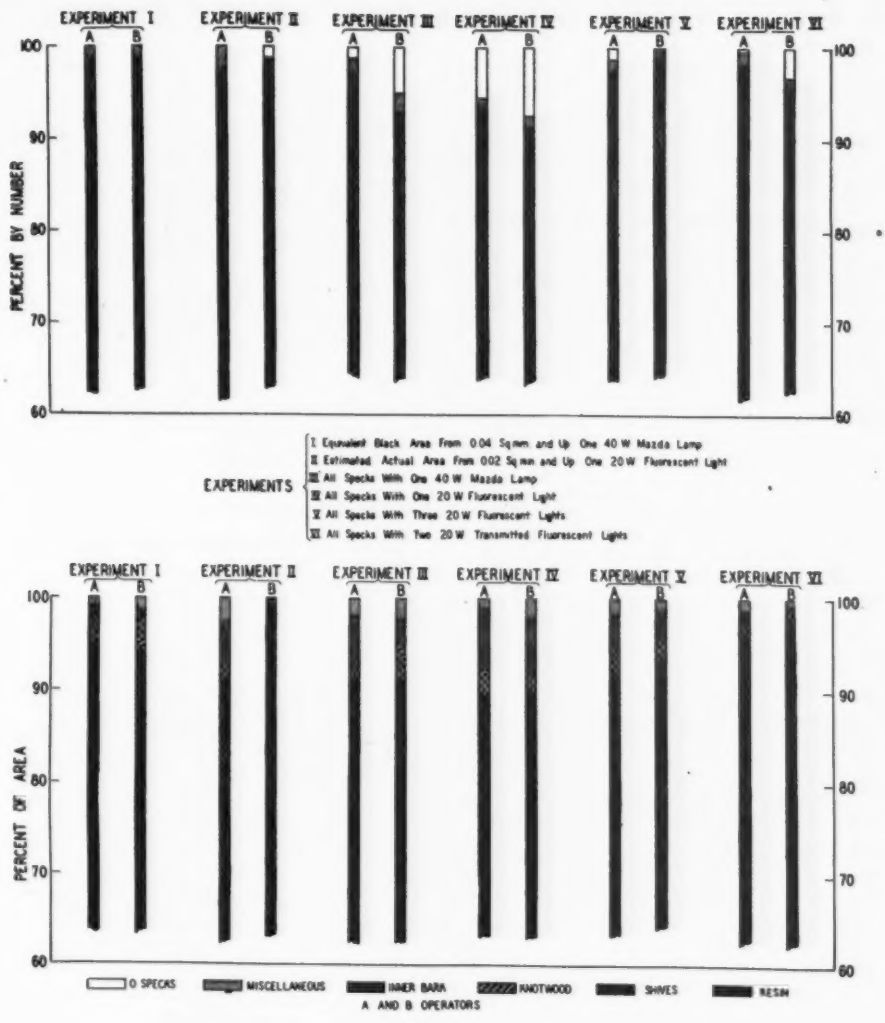


FIG. 4
Percentages of Specks by Number & Area

ception of the results in experiment IV, over 80% (both by number and by weight) were resin specks. Operator B, in experiment II, obtained 22% more resin specks than operator A; however, the percentage of resin specks was the least for both operators in experiment IV, using one 20-watt daylight fluorescent lamp with reflected light and the largest in experiment VI, using fluorescent transmitted light. In the first case, the percentage by number of resin specks was 70 as against 94 in the other. On the other hand, the percentage by number of inner bark specks in these two experiments was about 16 with reflected and 1 with transmitted light. These observations are important, because they show that inner bark specks are darker when observed with reflected light and the resin specks are darker and more noticeable by transmitted light.

Table III shows that the largest number of zero (imaginary) specks was marked by both operators when examining the sheets with one 20-watt fluorescent lamp with reflected light.

Percentage Standard Deviation of the Experiments

The relative percentage standard deviation of the number and the area of the specks per square meter, both when counting all the specks in the sheets and when sampling 20 or 5 sq. in. of each sheet, in sets of 5, 10, or 25 sheets, is shown in Tables V and VI and Fig. 5.

In view of the time required for examining a large number of sheets in each set and the relative irregularities of the errors in each experiment, nothing of value is gained by the use of more than five sheets (8.5 × 11 inches) in each set, a percentage standard deviation of 10 to 15% must be expected

TABLE II.—COMPARATIVE RESULTS OF AREA OF SPECKS, SQ. MM./SQ. M.

Experiment	Estimated Equivalent Black Area	Estimated Actual Area	Measured Actual Area	Measured Area of 20 sq. in.	Measured Area of 5 sq. in.
		Operator A			
I	57	137	172	...	...
II	...	218	...	401	...
III	...	...	...	375	...
IV	...	...	...	535	566
V	...	...	...	484	458
VI	...	...	...	507	459
		Operator B			
I	58	96	170	167	...
II	...	359	...	537	...
III	...	...	...	369	...
IV	...	...	...	536	508
V	...	...	...	431	456
VI	...	...	...	580	590

at least until those who do speck counts are carefully selected and trained.

The results as a whole show that the percentage standard deviation is somewhat larger for operator B than for operator A. The irregularities in these deviations may also be caused by the gradual increase or decrease of the counts in each set, as shown by the detailed tabulation of each experiment.

Percentage Frequency Distribution of the Specks

From the detailed frequency distributions of the specks by percentage by number and percentage of area, it is shown that detailed distribution is of little or no value. Both the producer and the purchaser are most interested in the relative percentage of small, medium, and large specks. Therefore, it was thought logical to classify the specks as follows: small specks—0.0 to 0.05 sq. mm.; medium specks—0.05 to 0.50 sq. mm.; large specks—0.50 sq. mm. and up.

The percentage distribution by number and by area was then reclassified as shown in Table VII and Fig. 6. This figure not only shows the justification for this classification (only a very few specks are above 0.50 sq. mm.), but also shows that the frequency distribution on a triangular percentage chart makes it possible to compare the different methods of speck count and the variation between operators.

This method of classification also makes it possible to obtain accurate measurements and analysis of the specks in considerably less time because, in most cases, the measurements can be carried out by determining only the largest diameter of the specks.

Small specks from 0.0 to 0.05 sq. mm. include those more or less circular specks whose largest diameter is less than 0.224 mm. and threadlike specks whose largest diameter is less than 0.71 mm. and the smallest diameter is 0.0705 mm. or less.

TABLE VII.—PERCENTAGE DISTRIBUTION OF ACTUAL SPECK AREAS

Experiment	Sq. mm.	Operator A Percentage by Number	Operator A Percentage of Area	Operator B Percentage by Number	Operator B Percentage of Area
I	0.00-0.05	4.59	0.83	5.39	1.60
	0.05-0.50	91.00	82.32	89.24	80.40
	0.50-	4.41	16.85	5.42	18.00
II	0.00-0.05	30.67	7.32	58.09	16.87
	0.05-0.50	66.93	78.79	40.62	72.78
	0.50-	2.40	13.89	1.29	10.35
III	0.00-0.05	35.95	8.98	40.33	9.61
	0.05-0.50	62.54	81.81	57.96	79.04
	0.50-	1.51	9.21	1.71	11.35
IV	0.00-0.05	66.65	21.06	68.61	23.13
	0.05-0.50	32.74	73.20	30.56	67.98
	0.50-	0.61	5.74	0.83	8.89
V	0.00-0.05	54.62	15.77	48.52	12.54
	0.05-0.50	44.23	74.38	49.71	74.30
	0.50-	1.15	9.85	1.77	13.16
VI	0.00-0.05	28.61	7.32	48.39	12.68
	0.05-0.50	68.03	79.51	49.87	72.60
	0.50-	3.36	13.17	1.74	14.72

Medium specks are those whose largest diameter is less than 0.71 and smallest diameter more than 0.0705 mm.

Large specks are those whose diameter is more than 0.71 mm.

The measurements and the analysis of the specks, at least for wood pulp papers, can be done in half the time.

Time Required for Marking, Measuring, and Analysis of the Specks

The time required depends upon the relative number of specks (the cleanliness of the paper), the method selected for marking the specks, the method

TABLE IV.—COMPARATIVE RESULTS OF PERCENTAGE OF AREA OF THE SPECKS

Experiment	Operator A Resin	Shives	Knotwood	Inner Bark	Miscellaneous	Operator B Resin	Shives	Knotwood	Inner Bark	Miscellaneous
I	83.08	12.00	3.04	1.12	0.76	83.39	8.85	3.05	3.54	1.17
II	81.78	9.37	1.48	4.76	2.61	98.60	0.46	0.27	0.55	0.12
III	86.47	8.79	0.91	2.09	1.74	83.30	7.96	3.95	2.66	2.13
IV	80.00	9.65	2.76	6.62	0.97	82.30	7.46	2.05	6.33	1.86
V	85.40	6.70	2.57	3.82	1.51	87.06	6.27	2.50	3.05	1.12
VI	93.10	2.90	1.60	1.30	1.10	95.90	1.90	1.20	0.40	0.60

TABLE V.—COMPARATIVE RESULTS OF PERCENTAGE STANDARD DEVIATION OF THE NUMBER OF SPECKS PER SQ. M.

Experiment	Operator A I	II	III	IV	V	VI
Sampling 5 sheets						
Actual count	14.14	6.20	8.07	5.95	....	....
Sampling 20 sq. in.	....	7.47	13.70	10.65	9.23	13.70
Sampling 5 sq. in.	....	....	....	12.50	7.88	13.90
Sampling 10 sheets						
Actual count	13.35	4.82	5.41	5.89	....	....
Sampling 20 sq. in.	....	3.77	10.60	8.60	8.83	9.05
Sampling 5 sq. in.	....	....	....	10.00	7.07	6.46
Sampling 25 sheets						
Actual count	9.52	2.64	1.09	4.41	....	....
Sampling 20 sq. in.	....	0.05	5.87	6.78	7.26	4.18
Sampling 5 sq. in.	....	....	....	5.28	1.51	0.12
Experiment	Operator B I	II	III	IV	V	VI
Sampling 5 sheets						
Actual count	17.95	11.35	10.30	8.39	....	....
Sampling 20 sq. in.	20.54	15.95	14.72	10.44	11.68	27.09
Sampling 5 sq. in.	....	....	....	10.30	6.33	24.80
Sampling 10 sheets						
Actual count	16.65	8.35	9.82	5.72	....	....
Sampling 20 sq. in.	9.42	2.52	12.75	10.64	10.31	26.85
Sampling 5 sq. in.	....	....	....	7.40	4.85	19.40
Sampling 25 sheets						
Actual count	9.44	0.07	7.21	5.13	....	....
Sampling 20 sq. in.	3.57	1.23	9.83	7.49	6.87	24.68
Sampling 5 sq. in.	....	....	....	6.72	0.70	22.05

TABLE VI.—COMPARATIVE RESULTS OF PERCENTAGE STANDARD DEVIATION OF THE AREA SQ. MM./ SQ. M.

Experiment	Operator A I	II	III	IV	V	VI
Sampling 5 sheets						
Estimated equivalent black area	11.90	....	....	....	....	....
Estimated actual area	13.10	8.20	....	....	....	....
Measured area of all specks	8.64	....	....	....	....	....
Measured area of 20 sq. in.	....	10.68	13.00	5.98	14.12	11.60
Measured area of 5 sq. in.	....	....	....	19.58	26.60	22.20
Sampling 10 sheets						
Estimated equivalent black area	11.52	....	....	....	....	....
Estimated actual area	9.62	7.07	....	....	....	....
Measured area of all specks	6.02	....	....	....	....	....
Measured area of 20 sq. in.	....	10.49	5.70	4.72	6.53	5.19
Measured area of 5 sq. in.	....	....	....	12.90	13.55	10.57
Sampling 25 sheets						
Estimated equivalent black area	2.29	....	....	....	....	....
Estimated actual area	....	1.48	....	....	....	....
Measured area of all specks	3.18	....	....	....	....	....
Measured area of 20 sq. in.	....	2.24	6.80	2.80	0.07	0.14
Measured area of 5 sq. in.	....	....	....	4.42	3.06	0.11
Experiment	Operator B I	II	III	IV	V	VI
Sampling 5 sheets						
Estimated equivalent black area	19.50	....	....	....	....	....
Estimated actual area	20.30	7.82	....	....	....	....
Measured area of all specks	14.80	....	....	....	....	....
Measured area of 20 sq. in.	13.42	10.85	16.50	13.20	13.10	10.84
Measured area of 5 sq. in.	....	....	....	17.00	24.95	21.85
Sampling 10 sheets						
Estimated equivalent black area	17.57	....	....	....	....	....
Estimated actual area	19.65	5.28	....	....	....	....
Measured area of all specks	12.40	....	....	....	....	....
Measured area of 20 sq. in.	11.56	6.98	10.44	10.60	9.42	8.20
Measured area of 5 sq. in.	....	....	....	11.72	20.42	15.80
Sampling 25 sheets						
Estimated equivalent black area	5.17	....	....	....	....	....
Estimated actual area	10.94	2.36	....	....	....	....
Measured area of all specks	3.24	....	....	....	....	....
Measured area of 20 sq. in.	3.88	1.86	4.47	10.53	4.98	3.88
Measured area of 5 sq. in.	....	....	....	12.10	7.79	5.34

used for determining the relative area of the specks per square meter or the relative number of small, medium, or large specks, and the precision of speck analysis required.

The average time used by the two operators for determining the "estimated equivalent black area" from 0.04 sq. mm. and up per square meter of the specks in five sheets in experiment I was 1.5 hours; that for determining the "estimated actual area" from 0.02 sq. mm. and up in experiment II was 3 hours.

Figure 7 shows the approximate time required for marking all the specks visible in the selected 20 sq. in. in each of the five sheets for both reflected and transmitted light, and also the time for measuring, classifying, and calculating the relative square area per square meter using 20- or 5-sq. in. sampling areas of the sheets for each set of five sheets. However, if one determines only the relative number of small, medium, and large specks per square meter, about one half this time is required for the measurement and classification.

Conclusions

The foregoing experiments show that, in determining the relative number and area of the specks per square meter in a paper by estimating the "equivalent black area" from 0.04 sq. mm. and up (TAPPI Standard T 437 m-43), only about one fifth the actual total number of specks and only one third the actual specks from 0.05 sq. mm. and up are accounted for; the total area of the specks thus determined is about equal to the area of the specks from 0.50 sq. mm. and up.

If the number and the area of the specks per square meter are determined by the "estimated actual area" of the specks from 0.02 sq. mm. and up, these results, as shown by Fig. 2 (experiment II), are affected more by the personal equation of the operators than in any of the other experiments.

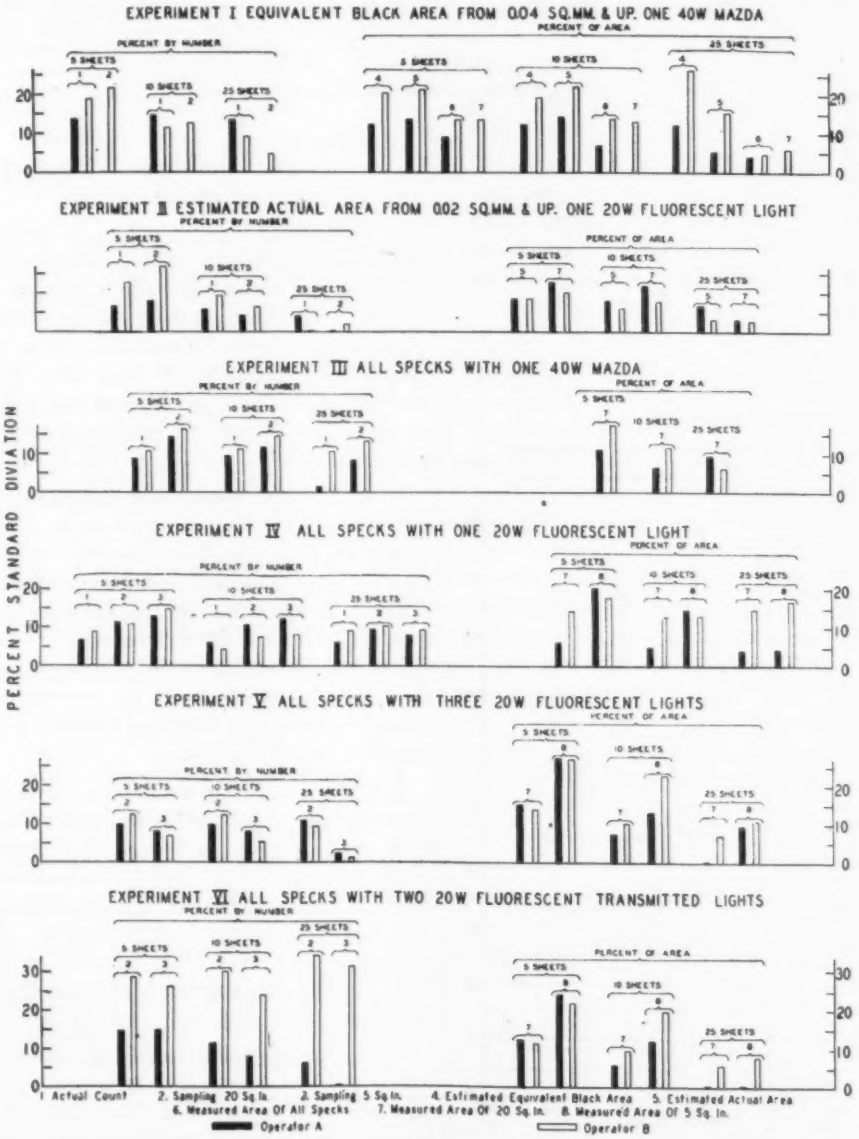

EXPERIMENT I EQUIVALENT BLACK AREA FROM 0.04 SQ.MM. & UP. ONE 40W MAZDA
EXPERIMENT II ESTIMATED ACTUAL AREA FROM 0.02 SQ.MM. & UP. ONE 20W FLUORESCENT LIGHT
EXPERIMENT III ALL SPECKS WITH ONE 40W MAZDA
EXPERIMENT IV ALL SPECKS WITH ONE 20W FLUORESCENT LIGHT
EXPERIMENT V ALL SPECKS WITH THREE 20W FLUORESCENT LIGHTS
EXPERIMENT VI ALL SPECKS WITH TWO 20W FLUORESCENT TRANSMITTED LIGHTS
PERCENT STANDARD DEVIATION
PERCENT BY NUMBER
PERCENT OF AREA
5 SHEETS
10 SHEETS
25 SHEETS
1 Actual Count
2. Sampling 20 Sq.In.
3. Sampling 5 Sq.In.
4. Estimated Equivalent Black Area
5. Estimated Actual Area
6. Measured Area Of All Specks
7. Measured Area Of 20 Sq.In.
8. Measured Area Of 5 Sq. In.
Operator A
Operator B

FIG. 5
Percentage Standard Deviation of the Experiments

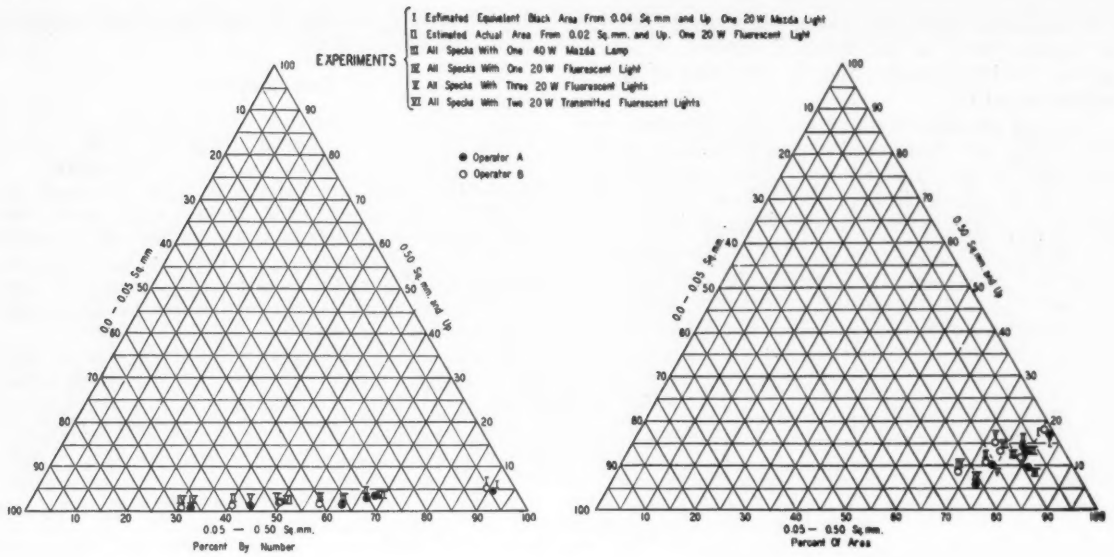

EXPERIMENTS
I Estimated Equivalent Black Area From 0.04 Sq mm and Up One 20 W Mazda Light
II Estimated Actual Area From 0.02 Sq mm. and Up. One 20 W Fluorescent Light
III All Specks With One 40 W Mazda Lamp
IV All Specks With One 20 W Fluorescent Light
V All Specks With Three 20 W Fluorescent Lights
VI All Specks With Two 20 W Transmitted Fluorescent Lights
Operator A
Operator B
0.0 — 0.05 Sq mm
0.05 — 0.50 Sq mm and Up
0.05 — 0.50 Sq mm.
Percent By Number
0.0 — 0.05 Sq mm
0.05 — 0.50 Sq mm and Up
0.05 — 0.50 Sq mm.
Percent Of Area

FIG. 6
Percent by Number and of Area of Small, Medium and Large Specks

When all the specks visible with a given illumination and a 14-inch chinrest are marked, the number and the areas of the specks per square meter are practically the same whether all the specks in the sheet or only those visible in selected 20- or 5-sq. in. sampling areas of each sheet are considered.

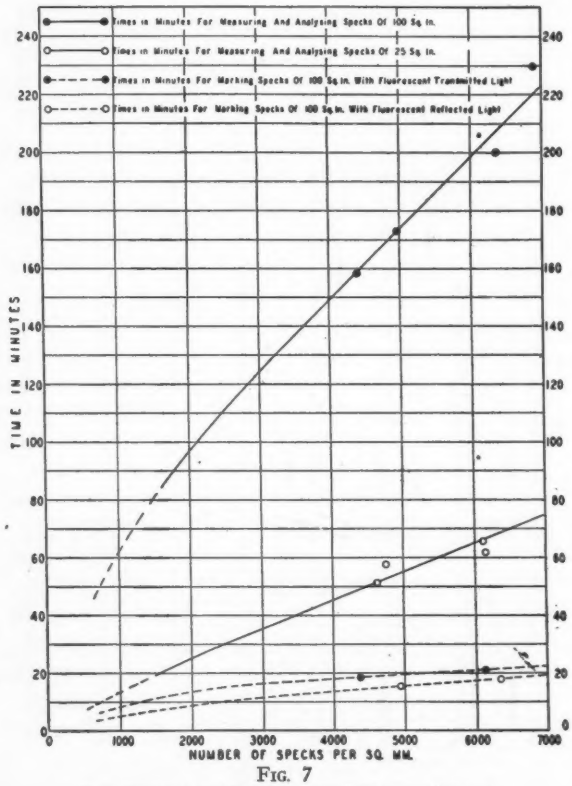

Times in Minutes For Measuring And Analysing Specks Of 100 Sq. In.
Times in Minutes For Measuring And Analysing Specks Of 25 Sq. In.
Times in Minutes For Marking Specks Of 100 Sq. In. With Fluorescent Transmitted Light
Times in Minutes For Marking Specks Of 100 Sq. In. With Fluorescent Reflected Light
TIME IN MINUTES
NUMBER OF SPECKS PER SQ. MM.

FIG. 7
Time Required for Marking, Counting, Measuring and Analysis of Specks

An excessive amount of reflected light reduces the total number of specks observed because of glare and internal reflection.

As some specks are more easily observed by reflected light than by transmitted light and vice versa, and as the ultimate use of the paper may involve either type of light, the method of illumination must be selected accordingly; the largest number of specks and the largest area per square meter are obtained by using one 20-watt daylight fluorescent lamp with reflected light.

A detailed frequency distribution of the specks by number or by area seems to be less important than the percentage distribution by number and by area of small, medium, and large specks. This considerably reduces the time required for direct measurements and analysis of the specks. However, qualitative analysis of specks in rag paper may increase the time, depending upon the relative number of miscellaneous specks requiring reagents for the determination of their origin.

The total time required for a speck count and classification of a wood pulp paper having about 6000 specks per sq. m. (when all the specks visible in 20-sq. in. sampling areas of each sheet, with five sheets to the set, and the percentage of small, medium, and large specks are determined by microscopic measurements of the long diameter of the marked specks in five sampling areas of each sheet) is about 38 minutes.

The percentage of standard deviation of the results will, in most instances, be between 10 and 15%, but this can be reduced somewhat by carefully selecting and training the personnel to be used for this work.

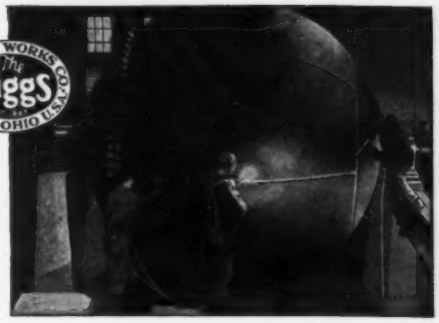


Fig. 45 — Biggs 14 ft. dia. welded rotary digester with worm-and-segment drive.

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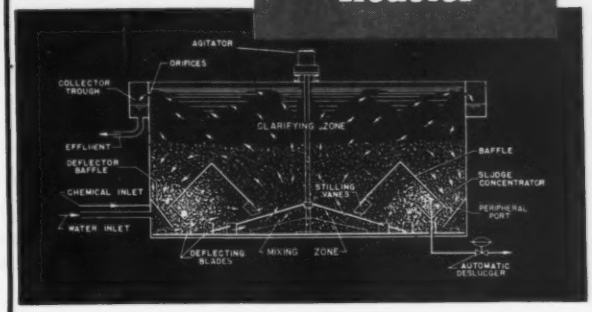

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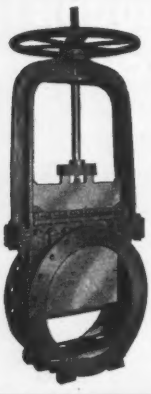

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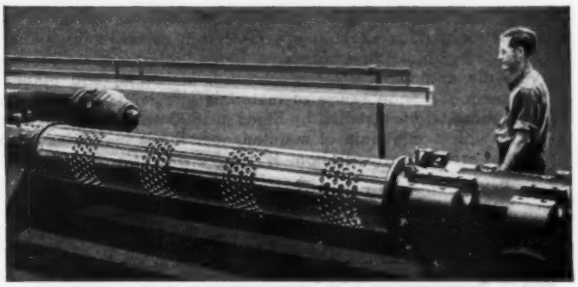

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EN-DURO —a super-quality core to meet demands for extra strength and service.

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RHINO —an extremely tough and strong core with a low cost that meets the market for a standard product giving superior service.

SONOCO PRODUCTS COMPANY

GRANTFORD, ONT. DARWOOD, N. C. HARTSVILLE, S. C. ROCKINGHAM, N. C. MYSTIC, CONN. LOWELL, MASS.

Curley S-P-S Tester

PAPER TESTING INSTRUMENTS

ENGINEERING, SURVEYING, HYDRAULIC ENGINEERING AND METEOROLOGICAL INSTRUMENTS.

Write for Catalogs

W. & L. E. GURLEY

TROY, N. Y., U. S. A.

WILLIAMS SMOOTHNESS AND FORMATION TESTER

For The Rapid And Accurate Measure Of Finish Formation And Printability Of Paper

Automatic timing with electric stop clock
No technical skill required

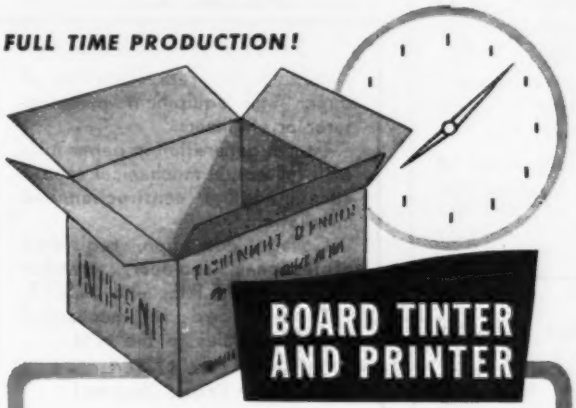
For 25 years we have developed and manufactured Pulp and Paper Testing Equipment

- Pulp Testing Ovens
- Sheet Moulds
- Laboratory Presses
- Sheet Dryers
- Wood Chip Classifiers
- Pebble Mills
- A.S.T.M. Penetration Testers
- Electric Centrifuges
- Paper Moisture Testers
- Freeness Testers
- Laminating and Plastic Moulding Presses

WILLIAMS APPARATUS CO., Inc.

19 PARK PLACE — WATERTOWN, N. Y.

FULL TIME PRODUCTION!



BOARD TINTER AND PRINTER

FOR CARTON ADVERTISING AND IDENTITY

Colored and overprinted shipping cases and containers are in more popular demand than ever. They provide product identification as well as low cost advertising. Hudson-Sharp tinters and overprinters are durable, efficient machines that operate simply and quickly. Resultant quality is higher — costs, lower.

HUDSON-SHARP

MACHINE CO. • GREEN BAY • WIS

T.M.I. PAPER TESTERS

BASIS WEIGHT SCALES
HINDE & DAUCH CRUSH
NEWS PENETRATION
TEAR—BURST—STIFFNESS

DEAD WEIGHT MICROMETER
1/10,000" x 1/1000" models

SCHOPPER TYPE
TENSILE
FREENESS
FOLDING
CANADIAN STANDARD FREENESS

METRIC
SCALES
MICROMETERS
TENSILE TESTERS

TESTING MACHINES, Inc.

429 W. 42nd St., New York 18, N. Y.

Old inaccurate Scales, Micrometers and other testers recalibrated and made over like new.

Since 1901

Dietz MACHINE WORKS

MANUFACTURERS

TOILET ROLL CONVERTING MACHINES
TOWEL ROLL CONVERTERS
SPECIAL MACHINERY
ANILINE PRINTERS
TOWEL INTERFOLDING MACHINES
ROTARY CARD CUTTERS
SLITTERS FOR VULCANIZED FIBRE

126 W. Fontaine St.
PHILADELPHIA 22, PA.

the name to know
is **CAMACHINE**

WINDERS • REWINDERS • SLITTERS
WEB TENSION AND GUIDE CONTROLS

WRITE FOR LITERATURE

CAMERON MACHINE COMPANY
61 POPLAR STREET BROOKLYN 2, N. Y.

CLEARING HOUSE

HELP WANTED—5c a word. Double rate for heavy face type. Minimum charge $1.25.
SITUATIONS WANTED—5c a word, double rate for heavy face type. Minimum charge $1.25. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—5c a word. Double rate for heavy face type. Minimum charge $1.25.
WANTED—5c a word. Double rate for heavy face type. Minimum charge $1.25.
OPPORTUNITIES—5c a word. Double rate for heavy face type. Minimum charge $1.25.

Classified advertising space may also be purchased at $3.00 per single column inch.
All classified advertisements are payable in advance. If box number is used—35 cents additional.

Address replies to advertisements appearing under Box numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

HELP WANTED

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston, Mass.
Specializing in Paper Mill Personnel
Positions Now Open

Manager for chemical sales
Cigarette paper supt., also carbonizing, tissues and light weight specialties
Board mill superintendent
General superintendent sulphite papers, including bonds
Superintendent sulphite paper mill, Fourdrinier machines, in Middle West
Manager folding box board mill
Research chemists and laboratory men $4,000-$8,000 year
Engineer and electrician for Penn.
Fourdrinier machine shift foreman, N. E., $1.75 hour, also back tender $1.17 hour, rotating shifts
Mechanical, civil and plant engineers also master mechanics

We invite correspondence (strictly confidential) with executives seeking new positions and with employers seeking new personnel. J-26

CHEMICAL ENGINEER WANTED

Must be graduate in Chemistry with at least five years practical experience in Water Purification, treatment of waste liquors, and organic problems encountered in the paper industry. This is an enviable opportunity with an old, substantial and highly progressive organization engaged in the manufacture of Waste Treatment Equipment.

Address Box 47-492 care Paper Trade Journal
J-17

TECHNICAL SALESMAN

Excellent opportunity for technically trained man with a few years experience in paper manufacture & sales ability, on the technical sales staff of well founded & Progressive chemical mfg. Co. Present employees know of this ad. Write Box 202, Suite 617, 1457 Broadway, N. Y. C. J-10

WANTED FOREMAN—Rotogravure Dept.—Southern Converter will pay TOP SALARY for a Foreman who has outstanding Specialty Bag and Printing experiences. Excellent future. Give detailed experiences, present position, and salary. All information held strictly confidential. Address Box 47-444 care Paper Trade Journal. J1-3

WANTED FOREMAN—Specialty Bag Dept.—Southern Converter will pay TOP SALARY for a foreman who has outstanding Specialty Bag and Printing experiences. Excellent future. Give detailed experiences, present position and salary. All information held strictly confidential. Address Box 47-443 care Paper Trade Journal. J1-3

SALESMAN WANTED—Man wanted to sell chemical specialties to paper mills along Eastern Seaboard for old established manufacturer. Chemical training desirable but not necessary. Fine opportunity for right man. Address Box 47-440 care Paper Trade Journal. J1-3

WANTED — Boss Finisher — Specialty Mill. Must be experienced in all phases of finishing and shipping. Ability to co-ordinate Methods and Procedures essential. Address Box 47-456 care Paper Trade Journal. J1-3

HELP WANTED

PLANT MANAGER

An unusual opening is available for plant manager in a one-machine mill located in Pennsylvania, manufacturing folding boxboard exclusively. Compensation will be in five figures, plus profit-sharing bonus.

We are only interested in communicating with men having thorough experience in this field.

In your reply, give full details of experience, personal qualifications, etc. Address Box 47-436 care Paper Trade Journal. J-10

WANTED MECHANICAL ENGINEER

Skilled and experienced in industrial power plant design and steam and power studies. Good position for right man. Give training, experience, and salary expected. Location Michigan. Reply to Box 47-238 care Paper Trade Journal. TF

SALARIED POSITIONS

$2,500-$25,000. This thoroughly organized confidential service of 37 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

SALES MANAGER
With Mill Following
For Paper Stock
With
Leading Waste Paper Packer
Good Salary
Attractive Proposition
Box No. 47-268 care Paper Trade Journal
TF

WANTED PLANT MANAGER—Mechanical preferred with pulp and paper mill experience desirable, for board mill in Indiana. Excellent opportunity for young man to grow with expanding organization. Write details of education experience and salary expected. Address Box 47-459 care Paper Trade Journal. J-26

WANTED — Supervisor of Finishing Department. Applicant to have experience in all Finishing Room Equipment—particularly a background of good labor relations and ability to get along in an organization, plus experience in job layout and efficiency in general Finishing Room procedures. Address Box 47-461 care Paper Trade Journal. J-10

WANTED—Thoroughly experienced toilet roll machine operator for 91" machine being delivered about July 1st. Address Box 47-462 care Paper Trade Journal. J-3

CLASSIFIED ADS BRING RESULTS

HELP WANTED

MACHINE TENDERS AND BACK TENDERS needed for Harper Fourdrinier Machine. Must be capable to handle paper by hand at a fast speed. Address Box 47-463 care Paper Trade Journal. J-26

SITUATIONS WANTED

SALES ENGINEER

Available for representation of paper mill equipment manufacturer or engineers.

Fourth generation in paper mills with full actual mechanical experience in design, construction and installation.

College education, registered professional engineer, member T.A.P.P.I., N.S.P.E., and A.S.T.E.

Experienced in mechanical equipment sales to the mills.

Address Box 47-484 care Paper Trade Journal
J-3

BAG SPECIALTIES

Plant Supt. Production control work. Machine development. Assume complete manufacturing responsibilities. All type bags, envelopes, printing, etc. Cellophane glassine, coated papers, etc. Many years experience. Available immediately. Address Box 47-467 care Paper Trade Journal.
J-26

MANAGER—Extensive experience in management and production of paper manufacturing and paper converting plants. Printing papers, facial tissue, cellulose wadding, waterproof, waxed, oiled and specialties. Address Box 47-446 care Paper Trade Journal. J1-3

POSITION WANTED—As Superintendent or assistant superintendent of mill making Sulphite Bond, Book and Coating paper. Have had twenty two years experience as superintendent. Address Box 47-452 care Paper Trade Journal. J1-3

ASSISTANT KRAFT PULP MILL SUPERINTENDENT or Tour Foreman—25 years experience of which 23 have been in supervisory work. Open for permanent or temporary employment. Will go anywhere. Excellent references. Address Box 47-454 care Paper Trade Journal. J1-3

PULP AND PAPER ENGINEER — Experienced in development and production work. Desires position requiring initiative with progressive company. Address Box 47-453 care Paper Trade Journal. TF

MECHANIC—Desire position as a Working Master Mechanic or a first class machinist job. 20 years experience in Paper Mills. Address Box 47-465 care Paper Trade Journal. J-10

AIR PRESSURE OPERATED BLACK-CLAWSON DRIVES

Mills about to replace old drives to forestall shutdowns due to drive failures are urged to investigate the B-C spiral bevel gear unit with the Fawick clutch.

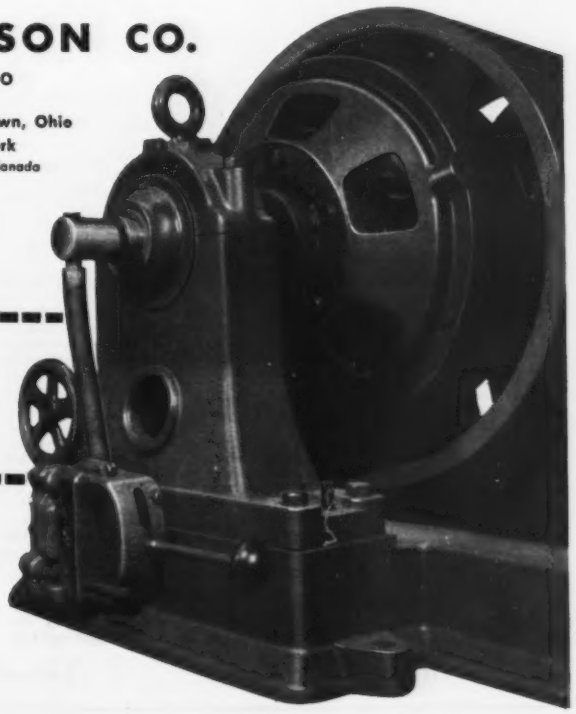
In all B-C drives equipped with this feature the clutch linkage shifting mechanism is eliminated, slippage is overcome, and smoother acceleration is assured.

As quiet running as the rotor of any motor, as free from vibration and, when Fawick clutch equipped, as gradual in acceleration as precision workmanship and the perfect balancing of shaft and pinion can make a drive.

THE BLACK-CLAWSON CO.

HAMILTON, OHIO

Divisions: SHARTLE BROS. MACHINE CO., Middletown, Ohio
DILTS MACHINE WORKS, Fulton, New York
Associate: Alexander Fleck Limited, Ottawa, Ontario, Canada



- Spiral Bevel Gear Drives
- Hypoid Drives
- Calender Reversing Drives
- Dryer Inching Drives

Shartle Bros. Dilts

SITUATIONS WANTED

PLANT MANAGER—Thorough experience in converting paper and boards; wants change to position offering better opportunity. Excellent production and labor relations background. Address Box 47-42 care Paper Trade Journal. J-26

MR. PAPER BAG MANUFACTURER—Can you use a man who desires management for a career? ASSETS:—Loyal, honest, judicious, 20 years experience as a top notch adjuster. Address Box 47-397 care Paper Trade Journal. J-26

MAN, 39, with 35 years experience in paper making, desires connection with reliable company in the Tropics as Machine Tender, Boss Machine Tender or assistant superintendent, Tour Boss. Am steady, sober and reliable. Address Box 47-458 care Paper Trade Journal. Jl-10

FACTORY SUPERINTENDENT — Adjuster-Mechanic with complete knowledge of paper bag manufacturing, also oil and aniline printing. Experienced all types machines ,flat and squares, self opening, sacks, specialties. Capable of own repairs and maintenance, also handling help. 22 years experience. Age 40. Willing to travel. Address Box 47-491 care Paper Trade Journal. J-26

SITUATIONS WANTED

CHEMICAL ENGINEER—Experience in development, research and control in pulp and paper; desires position in research or control, preferably in south or southeast. Age 37. Excellent references. Address Box 47-441 care Paper Trade Journal. J-26

SUPERINTENDENT, Tour Boss, Machine Tender—Ex-GI, experienced superintendent on board and rag felt. Will take any job to prove ability. Practical papermaker with college training. 41 years old. Immediate employment. Address Box 47-477 care Paper Trade Journal. J-3

DEPENDABLE MAN—36, married, veteran, government paper inspector, rag designer, desires position with progressive firm as paper salesman metropolitan area. Excellent character, neat appearance. Will travel part time. Address Box 47-478 care Paper Trade Journal. J-26

WOOD PROCUREMENT and Woodlands Manager.—13 years experience in all phases of wood procurement, timberland buying and management, for large operations. B.S. Degree in Forestry. Address Box 47-486 care Paper Trade Journal. J-10

SITUATIONS WANTED

OWNER OR BUSY EXECUTIVE—Can you use a man in whom you can place great trust? 42, technical background, mature judgment, long experience in paper converting field. Address Box 47-460 care Paper Trade Journal. J-26

WANTED—Position as Chief Power Engineer with a company that wants a man that can get results and cut expenses. 18 years experience. Age 40 and married. Address Box 47-466 care Paper Trade Journal. J-3

POSITION WANTED—Superintendent or Assistant Superintendent desires new connection. 25 years of practical and technical experience. All grades. Married, age 41. References. Address Box 47-488 care Paper Trade Journal. TF

CHEMICAL ENGINEER—Top flight, with nearly twenty years experience directing research on pulp, paper, board, specialties and mill equipment available for responsible job in production or technical direction. Address Box 47-476 care Paper Trade Journal. J-10

CLASSIFIED ADS BRING RESULTS

FOR SALE

BEATERS
1—2000 lb. Holyoke-Iron Tub Beater.
3—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—500 lb. Beater—iron tub.

BLOWERS
3—Buffalo Forge Company—Size 7—Duplex Conoidal steel plate Blowers. Ball bearing.

CALENDER STACKS
1—5 roll—72" face.
1—7-roll 36" Holyoke Machine (supercalender).

CENTRAP
1—Shartle Brothers Centrap.

CHIPPER
1—50" Murray Chipper (8 knives).

CREPING MACHINE
1—86" Waldron Creping Machine, practically new.

CYLINDER MOULDS
1—30" diameter x 74" face.
2—30" diameter x 54" face.
1—30" diameter x 73" face.
3—30" diameter x 84" face.
1—36" diameter x 80" face.
3—30" diameter x 72" face.

DOCTORS
14—Dillon Doctors — complete with accessories—98" face.

DRIVES
3—30 h.p. Downingtown, enclosed drives, ratio 6 to 1—with clutch and cone pulley for paper machine.
1—Cleveland Worm Drive, Ratio 10 to 1.
2—Smith & Winchester mortise gear. Drives.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM.
1—#1 Reeves Drive.
1—#2 Reeves Drive.
1—#5 Reeves Drive.
4—Herton vari-speed Pulleys.
3—Foote—7½ h.p. Speed Reducer (Ratio 240 to 1).

DRIVES (Angle)
1—General Machine Company 16 : 1.
1—Philadelphia 50:1—1 h.p.—1200 r.p.m.
3—Philadelphia 21½:1—3 h.p.—1200 r.p.m.
1—Link Belt 25:1—r.p.m. input 1150—r.p.m. output 46, including 7½ h.p. G.E. totally enclosed motor.

V-BELT DRIVE
1—31⅛" diameter x 7½" face, 5 groove.
1—16½" diameter x 7½" face, 5 groove. (With clutch).

DRYER SECTIONS
3—Dryers 36 x 64 with frames, bearings, gears, felt roll, base plates, etc.
5—Dryers 36 x 72, complete with frames.

DRYERS
3—48" diameter x 118" face.
1—28" diameter x 76" face.
1—48" diameter x 94" face.
3—25" x 120" (Baby Dryers).
1—48" x 100".
3—24 x 72 (Copper face, textile type).
3—24" diameter x 50" face.

ERKENSATORS
1—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREENS
2—12 plate Flat Screens.
1—4 plate Flat Screen.
1—6 plate Flat Screen.

HYDRAFINER
1—Dilts Hydrafiner (1200 r.p.m.)

HYDRAULIC PRESS
1—350 ton Butterworth Hydraulic Pulp Press —platen 42 x 65"—8' daylight.

JORDANS
1—Noble & Wood, Pony Monarch, Belt Driven.
1—#2 Miami.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble & Wood Monarch.

KNIFE GRINDER
1—96" Rogers Knife Grinder.

LAMINATING MACHINE
1—50" Laminating Machine—with 3 dryers.

PULLEYS
Various cone and assorted pulleys.

PULP SCREEN
1—IMPCO centrifugal pulp screen design No. 3.

PULPER
1—Jones Pulper.

PULVERIZER
1—Erie coal pulverizer.

PUMPS
1—Buffalo Pump—5500 g.p.m. (50' head).
4—Vertical Schutte & Koerting Acid Pumps (with motors).
3—Goulds—2 stage—420 g.p.m.—1010' head.
1—Gardner Denver 4 x 6—including 15 h.p. totally enclosed motors—700 g.p.m.—72' head (new equipment).
2—Well Pump Co.—100 g.p.m.—100 P.S.I. including 15 h.p. motors (new equipment).
1—Bell & Gossett—600 g.p.m.—100' head—including 25 h.p. motor.
1—Bell & Gossett—300 g.p.m.—120' head—including 15 h.p. motor.
1—Goulds Sump Pump—50 g.p.m.—20' head —including motor.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

REELS
1—72" Downingtown Expansion Reel.
1—2 Bowl Reel—110" face.

ROLLS
500—Brass tube-steel tube—rubber covered iron rolls—various sizes

SCREEN PLATES
20 Plates cut .016.
10 Plates cut .008.
Also other sizes and cuts in stock.

SHEETERS
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.

SHREDDERS
1—Gilman Shredder.
1—Waterville Shredder.

SLITTERS AND WINDERS
1—Cameron Type 24-2A—42" face.
1—Cameron Type 6—42" face.
1—114" Kidder.
1—30" Langston.
1—36" Beck Razor Blade type Slitter & Winder.

STACKERS
1—Economy Engineering 2000# capacity—with motor.
1—Economy Engineering 1000# capacity—hand operated.

STOCK PUMPS
1—10 x 12 open impeller. (All lead).
Numerous other Centrifugal Stock Pumps. Advise as to your requirements.

SUCTION COUCH ROLL
1—18" diameter x 100" drilled face.

SUCTION FELT ROLL
1—Nash 110" Suction Felt Roll.

TOILET EMBOSSER
1—84" Embossing Toilet Roll Winder.

VACUUM PUMPS
1—L-3 Nash Vacuum Pump.
1—No. 7 Sturtevant Vacuum Pump.
1—14 x 20 Connersville.
1—18 x 28 Sandusky.
1—Sandusky 8 x 10.

WET MACHINES
1—74" Moore & White.

YANKEE DRYERS
1—8' diameter x 120" face.
1—8' x 175" face.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** **Ben Kurs, Treas.**

250 Frelinghuysen Ave. **Tel.—Bigelow 3-3720** **Newark 5, N. J.**

TELEPHONE
HUMBOLDT 2-2177

CABLE ADDRESS: JACKROSS

ROSS PAPER MACHINERY CORP.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

JACK ROSS, Pres.

Sustaining Member

1—New Beloit 22" diameter Suction Couch Roll for 119" wire width with 115" suction opening.

1—Beloit 22" diameter Suction Couch Roll for 111" wire width with 107" suction opening.

BALING PRESS
1—Lodemann Brothers Model #5—MTX. Requires 3 h.p. motor.

BEATERS
1—600#-roll 36" face x 39" dia.
2—750 lb. Horne Iron Tub. Roll 60"x40"
1—1200 lb. E. D. Jones Beater—no tube
1—1200 lb. Noble and Wood—no tub. Bears new fillings for roll
4—E. D. Jones 2000# iron tub—with Warren hydraulic lighter bolts. Roll 67" dia. x 69" face.
1—Bronker Beater—Iron Tub—35 ton capacity.

BEATER ROLLS
1—48" face x 48" diameter.

BIRD SCREEN PLATE
17 Plate—48 cut. New condition

BLOWERS
2—Wilbraham-Green Rotary Positive Blowers and Gas Exhauster.
1—Sturtevant #8.
1—American Sirocc Size 4.
2—American Blowers #300.
1—American Blower #700.
1—American Blower #750.
1—Buffalo Size 48.
4—Buffalo Forge Co. #24 Cast Iron Blowers.
2—Buffalo Size 4.

CALENDER DOCTORS
1 set of 18 Warren Doctors 154" face with frames.
48 Warren Doctors—various sizes

CALENDER ROLLS
10 rolls various sizes

CALENDER STACKS
1—2 roll Holyoke 38" face.
1—Pusey & Jones 9 roll 64" face.

COMPRESSOR
1—Nash—Gas or Air Compressor—Type MD 671. Capacity 40 CFM at 100#. Direct connected to 5 h.p.—1750 r.p.m.—440 volt motor.

CONTINUOUS TRAVEL CUT-OFF
1—Langston 74" r.h. Type S. Continuous Travel Cutoff, with change gear box.

CONVERTING EQUIPMENT
2—Sanitary Napkin Machines. With motors and starters.
1—Miles Double Head Stitcher
2—Cameron Type 72" Towel Converting Machines
1—43" Hudson Shaw Facial Tissue converter—with embossing attachment.

COUCH ROLLS
1—19½" diameter x 82" face—brass covered.
2—20" diameter x 82" face—brass covered.

CYLINDER MOLDS
2—110" face x 56" dia.
1—72" face x 30" diameter
1—78" face x 30" diameter
2—84" face x 36" diameter.

DRYER DOCTORS
48—Warren Doctors. Various size

DRYERS
2—24" Dia. x 48" Face.
1—24" diameter x 72" face.
5—24" face x 29" diameter with gears and bearings.
15—New 120" face x 48" diameter dryers.

FLAT SCREENS
1—Harmon 16 plate.
1—Montague 6 plate. Ball bearing.
1—12 plate Bagley & Sewall Flat Screens with scrapers and spare set of plates.
6—8 plate Sandy Hill Flat Screens

FORK TRUCK
1—MobileLift—Gasoline—Lift 72".

FOURDRINIER SHAKES
1—Beloit Fourdrinier Shakes.

HAMMERMILLS
1—American Hammermill—37" anti friction bearing equipped.

HOG
1—Mitts & Merrill Hog, 12" x 12".
1—Fitchburg 7 x 8. Ball bearing.
1—Mitts & Merrill.

JORDANS
2—#2 Black-Clawson. For motor drive.
1—E. D. Jones Imperial—direct connected to 550 volt motor—with starter.
1—Dilion—25 ton capacity.
1—Dilion #2—50 ton capacity.
3—E. D. Jones Standard Ball Bearing direct connected—75 H.P. 440/3/60 motor.

KNIFE GRINDER
1—84" Covitt & Hanchett with 7½ HP motor. Purchased new—1943.

KNOTTERS
1—Wells Knotter.
2—Trimbey Knotters.

MOTORS
1—G.E. 200 h.p.—550 volts—3 phase—60 cycle.
1—Westinghouse 40 h.p. 900 r.p.m.—3 phase—60 cycle—440 volts—with starter.
1—G.E. 5 h.p. 1800 r.p.m.—3 phase—60 cycle—220 volts—with starter.
1—G.E. 75 h.p. 875 r.p.m.—3 phase—60 cycle—440 volts—with starter.
1—G.E. 100 h.p. 575 r.p.m.—3 phase—60 cycle—440 volts—with starter.
1—G.E. 50 h.p. 490 r.p.m.—3 phase—60 cycle—440 volts—with starter.
1—200 h.p. 285 r.p.m.—440 volts—3 phase—60 cycle.
1—200 Ampere Westinghouse Generator. New.
2—G.E. Slip Ring—125 h.p.—580 r.p.m.—440 volts.

PLATER
1—Holyoke 2 Roll 18" dia. 38" face.

PULLEYS
40—Cone Split and Solid Cast Iron Pulleys Various Sizes.

PULP EQUIPMENT
1—120" face Kamyr Press.
1—72" Sumner Disc Barker with motor.
2—IMPCO Pulp Screens
2—Trimbey Knotters
2—Apmew Pulp Screens
1—Jigger—1 deck—vibrating screen.
1—Zaremba Triple Effect Evaporator — 84" diameter.
1—Mitts & Merrill #17 Pulpwood Chipper.

PULPERS
1—Voith Pulper 20 tons cap.
1—Bird Pulper.

PUMPS
3—Worthington Pumps 10,000 g.p.m.—25' head. Requires 75 h.p. at 850 r.p.m.
8—Warren Vertical Pumps. 8"- by 8", 135 g.p.m. 80' head. Direct Connected 6 h.p. motor 440 volts.
2—Worthington 3", 2 stage, 200 g.p.m. 224' head Bronze Ball Bearings
1—American Marsh 200 g.p.m.—50' head—3" suction 2½" discharge.
3—De Laval Verticals—540 g.p.m. 1740 r.p.m. —30' head 5" x 5". Direct connected to 7½ h.p. 440 volts.
1—8" Pusey & Jones Open Impeller Centrifugal Stock Pump—belt driven.
1—3" Jones Size Pumps—belt driven
1—Worthington Monoblock—250 g.p.m.—130' head —direct connected to 15 h.p.—3500 r.p.m.—220/440 volts, totally enclosed, ball bearing motor.
1—Terry Marsh 750 g.p.m., 250' head. Requires 125 h.p. motor.
2—Ingersoll Rand all bronze 175 g.p.m.—40' head
1—Worthington 3"—280 g.p.m.—3550 r.p.m.—459' head.
1—New Gouldş Pump—75 g.p.m.—70' head—3 x 1½—for motor drive.
2—New Gouldş Pumps—150 g.p.m.—90' head—3 x 2—for motor drive.
1—New Gouldş Pump—500 g.p.m.—60' head—6 x 4—for motor drive.
1—Ingersoll Rand 500 g.p.m.—90' head—direct connected 15 h.p. 220-440 volt—3 phase—60 cycle totally enclosed motor.
1—Ingersoll Rand—50 g.p.m.—210' head—direct connected 7½ h.p.—220-440 volt—3 phase—60 cycle totally enclosed motor.
1—Roper Heavy Liquid 85 g.p.m.—54 lb. head.
1—Hayton 600 to 900 g.p.m.—25' to 20' head —ball bearing V-belt drive.
3—Lawrence 50 g.p.m.—60' head with extended base—ball bearing.
1—Quimby Sump Pump—100 g.p.m.—20' head—84" drop with 3 h.p. 220-440 volt 3 phase 60 cycle motor.

REDUCERS
1—Jones Worm MAAG Vertical Reducer. Ratio 248 to 1. Serial #20506!.

REFINERS
1—Weiner Refiner 24" with extended base for direct connection to motor, and a large list of new spare parts.

ROLLS
15—Brass 246" face x 9¾" diameter. 12½" journals.
75—Steel—100" face x 7" diameter.
17—Brass—110" face x 5" diameter.
200 Assorted rolls.

ROTARY SCREENS
1—#1 Bird with steel vats new liner
3—Moore & White
5—Bird Rotary Screens. Cylinder 36" dia. x 96" face. Copper vats.

RUBBER PRESS ROLLS
1—120" Face—19" Diameter
1—119" face x 19½" diameter.
1—100" face x 18" diameter.

REELS
1—192" Pusey & Jones Single Drum Reel.

SHEETERS
1—90" Finlay Duplex 12 roll backstand with layboy.
1—51" Hamblet Single Knife 12 roll back stand with layboy.
1—136" Hamblet Duplex.
1—154" Hamblet
1—63" Hamblet Duplex Rotary Cutter—12 roll backstand with M & W layboy.
1—50" Hamblet with 6 roll back stand and motor.

SHREDDERS
2—24" Sprout Waldron heavy duty shredders—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder—on wheels.
1—Ryther and Pringle Shredder.
5—36" Mitts & Morrill with 125 h.p. motors and starters.

SLICES
2—E. D. Jones Flexible Slices.

SLITTERS AND WINDERS
1—40" Waldron—2 drum.
1—120" Moore & White 4 drum slitter and rewinder—rebuilt.
1—100" Pusey & Jones Slitter and Rewinder with Unwind Stand.

STONITE PRESS ROLL
1—Stowe Woodward 111" face x 22" diameter

STUFF PUMPS
1—Dilion 7½ x 12" duplex
1—Moore & White Duplex 8x12".
1—Shartle 8" single plunger.
1—3/2" x 3" Worthington Triplex.
1—Beloit Duplex—8 x 18".
1—10 x 20 Triplex.

SUCTION FELT PIPE
1—Scofield Suction Felt Pipe.

SUPERCALENDER STACKS
1—7 roll Norwood—82" face. Complete with drive.
1—72" 9 roll Norwood—complete with drive.

TRIMMERS
1—32" Undercut Trimmer.
1—50" Undercut Trimmer.
1—60" Undercut Trimmer.
1—44" Seybold Holyoke Trimmer.

TUBE WINDING MACHINES
5—120" Tube Winding Machines—4½" Mandrels —New.

TURBINES
1—Westinghouse 125 h.p. 125 steam pressure—15 back pressure. Complete Used 1 year

VACUUM PUMPS
2—14" x 20" Connersville
1—Nash Hytor Size MD 671. Direct connected to 1½ h.p. 220/440 motor.

VOITH INLET
1—112" Voith High pressure stock inlet, equipped with distributor breaker roll.
1—141" Voith inlet with distributor roll.

FOR SALE | FOR SALE | FOR SALE

FOR SALE

BEATERS
4—68 x 68 Holyoke iron tub
3—72 x 44 Noble & Wood, no tub
2—52 x 42 Downingtown, iron tub

CALENDERS (SUPER)
1—66" nine roll Holyoke, anti friction
1—55" nine roll Holyoke anti friction
1—56" nine roll Holyoke
1—52" seven roll Textile

CREPER
1—72" creping machine, five 42 x 73 dryers

CUTTERS
1—84" Clark with layboy
1—100" Dillon with layboy
1—72" Finlay with layboy
1—50" Finlay
1—50" Clark

DRIVES
1—Waterbury, size 10, type C
1—Waterbury, size 20, type C, rebuilt

DRYERS
1—36 x 154"
3—28 x 114"
4—36 x 108"
1—48 x 98"

ENGINES
2—Sturtevant V 57—10" x 9". 50 HP.

FOURDRINIER PARTS
1—110" Fourdrinier with three sets presses 100 x 29

GRINDER KNIFE
1—62" Seybold
1—45" Springfield

JORDAN
2—Union
2—Horne
1—Claflin No. 2
3—Brushes

HOT MELT SYSTEM
1—Wolverine

KETTLES & TANKS
2—300 gal. jacketed, 100 lb. pressure
1—75 gal. copper jacketed
3—
1—16 ft. dia. conical settling tank

PRESS PARTS
3—Sets 108" x 20" dia.
2—Sets 120" x 18"
2—Sets 150"

PULPER
1—No. 3 Lamaye
1—No. 1 Lamaye

PUMPS
1—10 x 12 Deane triplex rebuilt
1—7½ x 6 Gould triplex, hydraulic No. 41944
1—7½ x 6 Deane triplex hydraulic

PUMPS (VACUUM)
1—Chicago pneumatic

RIFFLER
1—13, 14 and 15 ft. new system

SCREENS
2—No. 3A Bird
2—Moore & White No. 2
4—12 plate Packer flat
1—6 plate Packer
1—No. 2 Bird
1—Jones Leithwaik
2—12 plate
1—3 plate Valley

MOTORS
1—two cylinder Lancaster
1—three cylinder APMEW, mslud 50 x 100

SLITTERS AND WINDERS
1—150" Moore & White four drum
1—114" Kidder two drum

FRANK H. DAVIS CO., 175 Richdale Ave., Cambridge, Massachusetts TF

SITUATIONS WANTED

PAPER MILL ENGINEER visiting England and Scotland during August and September. Welcomes special assignments. Address Box 47-494 care Paper Trade Journal. J-26

COST ACCOUNTANT desires change. Experience 15 years paper and bag manufacturing. Capable handling all accounting and office management. Will go anywhere. Address Box 47-470 Paper Trade Journal. J-26

FOR SALE

FOR SALE

SLITTER-REWINDER

60 inch Cameron Model 6-2A, Good Working Condition, Complete with Motor, Knives, Shafts and Knife Grinder. Make Offer. FOB Car Chicago. Immediate Delivery. Address Dept. P.C. P. O. Box 363, Chicago 90, Illinois. J-26

FOR SALE—One Stainless Steel Lined Digester, Built for 150-200 lbs. pressure, jacketed ID-50"—19'4" long with rollers and rotating gears complete. Practically new—priced low for quick sale. Blue print furnished on request. Samuel Levy, 4100 E. Thompson St., Phila., 37, Pa. New and used Tanks all sizes. J-26

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Our listings contain over 60 machines in stock for immediate delivery—write for this and future monthly bulletins describing available:

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Chicago 16, Illinois
Telephone Victory 7169
J-31

The Teall Continuous Automatic Facial Tissue Folder and Cutter cuts waste to less than ½ of 1%. Adjustable for various widths and lengths. Converts carload in 8 hours. Further details and photos Box 47-475 care Paper Trade Journal. J-10

EQUIPMENT FOR SALE—One (1) Kerr Steam Turbine No. 246 complete—Serial No. 772—400 B.H.P.—3600 RPM Directly connected to an Allis Chalmers Generator — Serial No. 102437—220 volt, 3 phase, 60 cycle, 3600 RPM and an Allis Chalmers Exciter direct connected, Serial No. 92347. Write Sangamon Paper Mills Inc., 137 W. Pershing Rd., Chicago, 9, Illinois. J1-3

FOR SALE—1 Hamilton-Corliss Variable Speed-Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers. any width. The Chesapeake Paperboard Co., Baltimore 30, Md. TF

1—30" Kidder Model SL Shear Cut Slitter and Rewinder.
1—52"; 1—60"; 1—64" Waldron Brush Coaters. Festoon equipment. New J. O. Ross Drying Oven. 5 Buffalo Blowers. New winding reel. Motor equipments.
1—Sheridan Die Press 27x44"—rebuilt.
Power Paper Cutter: 1—44" 20th Century Seybold; 1—34" late Oswego. 1—54" Seybold Holyoke Mill Type. 1—45" New Model Sheridan.
6—Potdevin and 1 Lockport flat and square bag machines, complete with motor equipments, making bags from ¼ to 35 lbs.
1—64" complete creping machine.
2—#2 Lanoye Pulpers.
1—55" wide Hamblet Vickery Layboy.
1—36" Beck Shear Cut Slitter and Rewinder.
1—60" and 1—50" seven roll Holyoke Calender Stacks.
1—60" Hammersley Score Cut Slitter & Rewinder.
1—51" Hamblet Rotary Sheeter with slitting attachment, Moore & White layboy and 8 roll backstand.
1—Rotary Embossing Machine, 41" wide with motor.
1—Laminating machine 96" wide. Will laminate sheets any length up to 150" by 1" variations. Suitable for laminating paper or board.
1—26" Waldron 8 Color Wall Paper Printing Press, with Jolly static eliminator, 50 ft. turn around dryer, blower and AC motor equipment.
1—74" Black-Clawson Single Rotary Sheet Cutter.
1—Morrow Wrapping and Sealing Machine. Complete with motor and controls. Capacity 450 packages per hour.
1—52" Cameron, type 40-1AF. Slitter and Rewinder.
1—30" Model B Fales Slitter & Rewinder. Set of 2½" wide knives.
1—94" Moore & White Duplex Rotary Sheeter.
1—Paper Converting Machine Company's Towel Interfolder.
1—Farrel-Birmingham 30x160" Roll Grinder, 20' bed.
1—52" Camachine 10-10.
1—60" Double drum rewinder for straightening rolls.
1—Bird Saveall—60" dia. x 124" face.
1—128" Langston Slitter & Rewinder, rewinds a 60" dia. roll.

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FOR SALE
2 COLOR ROTO
38" wide by 23" circumference. Sheet Fed Rotogravure Press. Two separate colors but not superprinted. Press run very little. Without automatic feeder or electrical equipment. Will convert into roll feed if desired.
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1—170" Fourdrinier consisting of 18" dia. breast roll, 24" dia. suction couch roll, 5 bronze suction boxes, 28 new rubber covered fourdrinier rolls, 6—8⅓" dia. wire rolls. All mounted on anti-friction bearings.

1—8 ft. dia., 175" face Yankee Dryer, 6—4 ft. dia., 160" face Black & Clawson Dryers, 1—170" Moore & White Slitter and Winder.

Will sell separate or assemble above complete machine

1—Lobdell No. 3 Roll Grinder complete with motors. Will grind rolls up to 30" dia., 180" face.
12—New dryers 48" dia., 86" face, complete with bearings, gears and steam joints. Can furnish frames if desired. Immediate delivery.
10—Steel dryers, 30" dia., 80" face. Can furnish gears, frames and bearings.
1—36" dia., 72" face Moore & White Dryer.
1—48" dia., 120" face, Moore & White Dryer.
1—48" dia., 86" face Bagley & Sewall Dryer, ground for crepeing doctor.
2—E. D. Jones 88# Beaters, rolls 50" dia., 44" face, machined slots, good fillings.
1—E. D. Jones Beater roll 62" dia., 48" face, machined slots, New fillings.
1—Emerson Jordan comparable to E. D. Jones Leviathan, designed for direct connecting.
2—No. 2 Bird Rotary Screens, copper vats, plates cut .018.
1—Black & Clawson single press Cylinder Mould 30" dia., 74" face. New vat.
3—Cylinder Moulds 50" dia., 90" face.
6—Cylinder Moulds, 30" dia., 72" face.
40—Brass covered Felt Rolls 6¼" dia., 72" face.
36—Fourdrinier Wire Rolls 6⅛" dia., 96" face. Will shorten these to fit your machine.
20—7" dia. Aluminum Covered Table Rolls, 172" long. Will cut these to make 2 rolls 86" face or less.
20—Sets New 2-Ton Yale & Towne Chainfalls, with special 20 ft. lift chain.
1—14 ft. Globe Rotary Digester, complete with Falk gear reduction.
2—100 H.P. General Electric, 550 volt, 3 phase, 60 cycle motors, 720 RPM.
1—150 H.P., A. C. Generator, complete with 250 volt, 300 amp. switchboard.
1—Taylor-Stiles Rag Cutter. Head equipped with three 28" knives.
2—B. F. Perkins Rag Cutters. Excellent condition.
5—Gould Shower Pumps 3" inlet, 2" outlet, 100 GPM, 104 ft. head, direct connected to 5 H.P., 3 phase, 60 cycle, 440 volt motor.
7—Roberts 2-pocket Pulp Grinders.
2—Norton Pulp Stones 27" x 52".
1—New Gould triplex Water Pump, Fig. #1712, 5" x 8" stroke, back-gear driven.
1—Gould 8" x 8" Triplex Water Pump, Fig. #924.
2—Shartle 10 x 20 Triplex Plunger Stock Pumps.
2—Shartle 8 x 16 duplex Stock Pumps, inlet chamber divided so it handles two grades of stock.
1—10 x 18 Connersville Vacuum Pump.
1—Calender Stack 108" face with 7 rolls, bottom 20" dia., top 14" dia. Intermediates 9" dia.
6—Sets New Wright 3-Ton Chainfalls with special 20 ft. lift chain. In original boxes.
2—Sets New 10-Ton Chainfalls with anti-friction bearing trolleys. One-half price.
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For Sale

2—Langston or Knowlton Spiral Winders, Cut-off Saws
4—Knowtlon Tube Recutters with Knives
1—Roll Slitter and Rewinder 69" Wide, Shear Cut
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1—R.T.&W. Convolute Can Winder. Labeling Attachment Winding Belts—Dies for Paper Caps —Dampening Machines, etc., etc.
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We Purchase All Kinds Paper Tube Machinery.

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110" Hamblet heavy duty Mill Type Sheeter.
54" Isaman shear cut Slitter.
54" Brown & Carver hand clamp Power Cutter.
44" National Automatic Power Cutter, rebuilt.
70" Meisel two color rotary.
25 x 36 Babcock Cylinder Press, 3-roller.
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American heavy duty Cross Cut Saw.
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Baling Presses—NEW—both hand and power.

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Three — 200 H.P., General Electric Synchronous motors Type ATI-16-205, 450 R.P.M. —3 phase, 60 cycle, 440 Volts, complete with reduced voltage manually operated starters.

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Middletown, Ohio
J-31

FOR SALE

1—Chandler Taylor 2 cylinder engine 11" x 11" steam 150 lb. r.p.m. 250.
1—Chandler Taylor 2 cylinder engine 12" x 12" steam 250 lb. r.p.m. 230.
1—Harrisburg Uniflow Engine, cylinder 20" dia. 20" stroke 120 lb. steam 240 h.p.
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FOR SALE—1 Cochrane-Becker System, LP-63-C, CB-3-C (High Pressure Condensate Return System), complete with motor and received tank. CORRUGATED CONTAINER COMPANY, 640 SHOEMAKER AVENUE, COLUMBUS, 3, OHIO. J-26

FOR SALE—48 x 66 Sheridan Die Cutting Machine with automatic feed and pile delivery; Sheridan 8-D four-rod 28 x 44 Embosser with chain feed and chain delivery. Both available immediately. Address Box 47-495 care Paper Trade Journal. J-3

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FOR SALE

FOR SALE

1 Noble and Wood Mammoth Jr. Jordan, arranged for belt drive, capacity 1 ton per hr.
1 Noble and Wood Mammoth Jr. Jordan, arranged for direct connection to motor, less motor, capacity 1 ton per hr.
1 Westinghouse geared speed changer, ratio 3 to 1, 175 H.P. Type SVR-13
1 Westinghouse geared speed changer, ratio 1 to 1, 175 H.P. Type SVR-13
2 Riley 5 retort stokers with steam engine drive
1 4000# capacity motor driven freight elevator with automatic stop control—can be inspected in operation at our plant.
1 120 inch slitter & scorer (fully equipped) Knowlton 60 x 120
1 Hamlet sheet cutter 82 inch knife
1 Oswego Paper Cutter 63 inch knife (A-1 condition)
1 Hobbs double scoring machine
1 Hobbs Fly machine
1 Hobbs Ender
1 Hobbs double corner cutter
1 Hobbs hand topping machine
1 Potdevin hand label glueing machine
1 Knowlton #7 single corner stayer
1 Model F-23-T Elwell Parker Lift Truck, fork type complete. Extra battery charger, and extra battery 15 cell 21 plate, type TLM Exide (New) 4000# capacity
1 6 plate packer Screen (Sandy Hill)
1 Camacahine #6 model 1A
1 Carrick combustion controls for two boilers to be sold as unit.
1 82" Moore & White Rotary Cutter Duplex
1 #4 Reeves Drive open
1 #5 Reeves Drive open
1 Shepard Elevator, motor driven 1 H.P. 1 ton capacity
1 Shepard Elevator, hand operated 1800 lbs. capacity
1 Ton Elevator motor driven ½ H.P.
1 Deming 3½x4 triplex plunger pump
1 Lawrence 6 inch double suction water pump
2 8x12 inch Moore & White Duplex pumps
3 Downingtown Fan Pumps 6"
1 Ingersoll Rand Stock Pump (New) 10x6
1 Ingersoll Rand Stock Pump New) 12x6
1 Brass covered finishing press roll 17¾ inch dia. x 80½" face complete with bearings and Noble and Wood friction drive
10 100" phosphor bronze No. 2-A Bird Screens .022" slots never used after being reset once
12 6½ dia. x 92" face steel dryer felt rolls, 1 7/16" journals
1 750 GPM underwriter's fire pump, steam driven (complete)
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Numerous elbows and tees for 5, 6, 8, 10, 12" spiral rivetted pipe

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Mills: Walloomsac, New York

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FOR SALE

Immediate delivery—Model IC Chambon Rotary, Three-Color and Varnish Printing Press. Prints maximum 13¾" across cylinders and 14⅜" around cylinders. Will print up to 450 units per minute. Extension dryer, slitting device, guillotine cut-off. Prints thickness from tissue to 30 point board. Purchased new last year.

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NEW 44" National Automatic Cutters, ready for immediate delivery.
35" Waldron Reel.
110" Hamblet heavy duty Mill Type Sheeter.
32" Hobbs & 34" Inman shear cut Slitters.
63" Oswego Power Cutter—to be rebuilt.
14 x 22 John Thomson American heavy duty Woodworking Saw.
Model 10 Bunn Tying Machine.
Baling Presses—NEW—both hand and power.

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FOR SALE—One 6" two-stage Warren Pump with extended base for direct connection to motor—900 gallons per minute—Head 250'—Speed 1150 rpm, suitable for pulp stock. Address Box 47-479 care Paper Trade Journal. J-3

FOR SALE—1 Sandy Hill Wet End. 6 moulds 36 x 112", vats, press parts, pumps, whippers, etc. Address Box 47-482 care Paper Trade Journal. J-26

FOR SALE OR LEASE—Paper Mill Site and Building in the Eastern Area with low power rates, railroad sidings, unrestricted area, low taxes, labor available, water plentiful. Perfect for mill up to fifty tons daily. For full details write Box 47-473 care Paper Trade Journal. J-3

WANTED

WANTED TO PURCHASE

Paper slitter and Rewinder, 120" Wide, rolls Approx. 40" Diameter.

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MACHINERY WANTED—1—Induction Motor, 150 HP, 450 RPM, 440 volt, 3 phase, 60 cycle. 1—Synchronous Motor, 80% power factor, 200 HP, 450 RPM, 440 volt, 3 phase, 60 cycle. Also starting equipment for the above motors. Write Sangamon Paper Mills Inc., 137 W. Pershing Rd., Chicago, 9, Illinois. JI-3

WANTED — W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 47-70 care Paper Trade Journal. TF

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WANTED

WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS. TF

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MISCELLANEOUS

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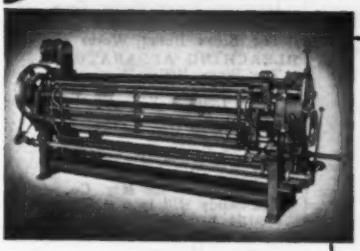

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PAPER BAG MACHINES

Also manufacturers of Aniline and Oil Ink Printing Presses, Waxing, Gluing, and Laminating Machines.

POTDEVIN MACHINE CO.
EST. 1893
1223 38TH ST BROOKLYN, N.Y.

POTDEVIN

PRICE & PIERCE, Ltd.

WOOD PULP & PAPER AGENTS

for domestic and export

60 EAST 42nd STREET
New York 17, N.Y.

WHERE

ABRASIVES
Monsanto Chemical Co.
Norton Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division

ADHESIVES
American Anode Incorporated
American Resinous Chemicals Corp.
Arabol Mfg. Co.
Casein Co. of America,
Division of The Borden Co.
Dennis Chemical Company
Hercules Powder Co., Inc.
Monsanto Chemical Co.
Philadelphia Quartz Co.
United States Rubber Co.

AGITATORS
Appleton Machine Co.
Biggs Boiler Works Co.
Dilts Machine Works, Inc.
Dorr Company
Downingtown Mfg. Co.
Corp.
General American Transportation
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

AIR CONDITIONING
Westinghouse Electric Corporation

ASBESTOS PRODUCTS
Raybestos-Manhattan Inc.,
Manhattan Rubber Division

BAG MACHINES
Potdevin Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Weber, Herman G. & Co., Inc.

BALING MACHINES
Thomas W. Hall Co.

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
The Moore & White Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BEARINGS
Black-Clawson Company
Jones, E. D., & Sons Co.
Link Belt Company
Magnus Metal Corp.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
Shartle Brothers Machine Co.
SKF Industries, Inc.
Timken Roller Bearing Co.
Valley Iron Works Co.
T. B. Wood's Sons Company

BEATERS & JORDANS
The Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Hermann Mfg. Co.
E. D. Jones & Sons Co.
Morden Machines Co.
Noble & Wood Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lukenweld, Inc.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Alexander Brothers
Allis-Chalmers Mfg. Co.
Cincinnati Rubber Mfg. Co.
Link Belt Company
Raybestos-Manhattan Inc.
Manhattan Rubber Division
J. E. Rhoads & Sons
United States Rubber Co.
T. B. Wood's Sons Company

BLADES
Simonds Saw & Steel Co.

BLEACHERS
Improved Paper Machy. Corp.

BLEACHING BOILERS, ROTARY
The Biggs Boiler Works Co.

BLEACHING APPARATUS
The Biggs Boiler Works Co.
Improved Paper Machy. Co.
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Roderick O'Donoghue
Pennsylvania Salt Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Carthage Machine Co.
Kalamazoo Tank and Silo Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
Babcock & Wilcox Co.
Biggs Boiler Works
Foster Wheeler Corp.

BOTTOMS
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

CALENDERS
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Co.
Moore & White Co.
Perkins & Sons, Inc., B. F.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASEIN
Casein Co. of America,
Division of The Borden Co.
Hercules Powder Co., Inc.

CASTINGS
Appleton Machine Co.
Black-Clawson Company
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Grinnell Company
Hamblet Machine Co.
E. D. Jones & Sons Co.
Link Belt Company
Lobdell Co.
Magnus Metal Corp.
Noble & Wood Machine Co.
Rather & Pringle Co., Inc.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.
Walworth Company

CAUSTIC SODA
Pennsylvania Salt Co.

CENTRIFUGAL MACHINERY
Bird Machine Co.
De Laval Steam Turbine Co.
Nichols Engrg. & Research Corp.
Ross, J. O., Eng. Co.
Shartle Brothers Machine Co.
Williams Apparatus Co.

CHAINS
Link Belt Company

CHEMICALS
American Anode, Incorporated
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Ansul Chemical Co.
Calco Chemical Co.
Calgon, Inc.
The Cowles Detergent Company
Diamond Alkali Co.
Dispersion Process, Inc.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuffs Corp.
Geigy Co., Inc.
Gottesman & Co.
Hooker Electrochemical Company
The Kinsley Chemical Company
Mallinckrodt Chemical Works
The Mathieson Alkali Works, Inc.
Monsanto Chemical Company
Nopco Chemical Co.

TO BUY

Naugatuck Chemical Div. of U. S. Rubber Co.
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Company
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
L. Sonneborn Sons, Inc.
United States Rubber Co.
Witco Chemical Co.
Wyandotte Chemicals Corp.

CHESTS
Kalamazoo Tank and Silo Co.

CHLORIDE OF LIME
Pennsylvania Salt Co.

CLAY
A. M. Meincke & Sons Inc.

CLEANERS
Adell Chemical Company

CLEANING MATERIALS
Adell Chemical Company
Amer. Cyanamid & Chem. Corp.
Bird Machine Co.
The Cowles Detergent Company
The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
Paper Makers Chemical Department Hercules Powder Co.
Monsanto Chemical Co.
Nichols Engrg. & Research Corp.
Oakite Products, Inc.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
L. Sonneborn Sons, Inc.
Wyandotte Chemicals Corp., J. B. Ford Division

CLUTCHES
Appleton Machine Co.
Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
T B. Wood's Sons Company

COATING MACHINERY
Gibbs-Brower Company, Inc.
Hudson Sharp Machine Company
Mayer Machine Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corporation, John
Weber, Herman G. & Co., Inc.

COATING MATERIALS
American Anode Div., The B. F. Goodrich Chem. Co.
Dennis Chemical Company

COLORS
Chemical & Pigment Division, The Glidden Company
C. K. Williams & Co.

COMPOUNDED LATICES
American Anode Div., The B. F. Goodrich Chem. Co.

COMPRESSORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
Nash Engineering Co.

CONDENSERS
Foster Wheeler Corp.

CONSULTING ENGINEERS
Frederic C. Clark Associates
Ferguson, Hardy S.
Hardy, George F.
Alvin H. Johnson & Co., Inc.
The Kohler System Company
Main, Inc., Chas. T.
The MacPherson Company
Roderick O'Donoghue
The Rust Engrg. Co.
J. E. Sirrine & Co.
South Wabash Engrg. Co.
Stone & Webster Engrg. Corp.
H. G. Weber & Co., Inc.

CONTROLLERS
Black-Clawson Co.
Cochrane Corp.

CONTROLS
The Bristol Company
Cochrane Corp.
Harry W. Dietert Company
Stickle Steam Specialties Co.
Westinghouse Electric Corporation

CONVEYORS
Black-Clawson Company
Link Belt Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.

COOKING PROCESSES
The Kinsley Chemical Company

COOLING SYSTEMS
Foster Wheeler Corp.

CORES
Elixman Paper Co.
Rodney Hunt Machine Co.
Smith & Winchester Mfg. Co.
Sonoco Products Co.
Walker-Goulard-Plehn Co.

COUPLINGS
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
T. B. Wood's Sons Company

CRANES
Link Belt Company

CUTTERS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Noble & Wood Machine Co.
Perkins & Son, Inc., B. F.
Simonds Saw & Steel Co.
The Smith & Winchester Mfg. Co.
South Wabash Engrg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Raybestos-Manhattan Inc., Manhattan Rubber Division
Valley Iron Works Co

DEASPHALTING CHEMICALS
Adell Chemical Company

DECKERS
Improved Paper Machy. Corp.
Oliver United Filters, Inc.

DECKLE STRAPS
Stowe Woodward, Inc.

DE-INKING
Adell Chemical Company
Dilts Machine Works
Kinsley Chemical Co.
Roderick O'Donoghue
Shartle Brothers Machine Co.

DEINKING CHEMICALS
Adell Chemical Company
Philadelphia Quartz Co.

DENSOMETERS
W. & L. E. Gurley

DETERGENTS
Adell Chemical Company
Cowles Detergent Co.
Philadelphia Quartz Co.
L. Sonneborn Sons, Inc.

DEWAXING CHEMICALS
Adell Chemical Company

DIGESTERS
Biggs Boiler Works Co.
Foster Wheeler Corp.
General American Transportation Corp.
Pusey & Jones Corp.

DISPERSING AGENTS
Adell Chemical Company
New York Color & Chemical Co.
L. Sonneborn Sons, Inc.

DOCTORS
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.

DOCTOR BLADES
Black-Clawson Company
Lodding Engrg. Corp.
Raybestos-Manhattan Inc. Manhattan Rubber Division
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.
United States Rubber Co.

DRIERS
Black-Clawson Company
Gibbs-Brower Company, Inc.
Lukenweld, Inc.
Murray Mfg. Co., D. J.
J. J. Ross Company

AMERICA'S STOCK CUTTING SPECIALISTS

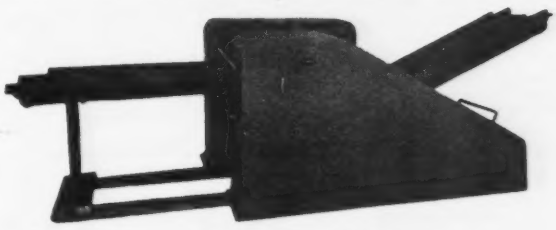
Taylor-Stiles & Company have made cutters for many industries and supply the stock cutting needs of a majority of the leading paper mills of America because:

1) Taylor-Stiles has furnished specialized cutting machines for fine and coarse paper making since 1880.

2) Taylor-Stiles has kept pace with every improvement in metals, knife making, power development and paper making processes.

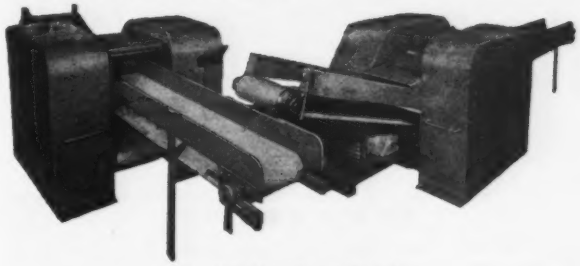
3) Taylor-Stiles has increased the quality and speed of stock reduction many times over, in the last 58 years.

Below are two types of modern Taylor-Stiles cutters.



No. 1 Rag Cutter

Capacity 2000 pounds an hour, cuts all kinds of paper stock, rags, bagging, burlap, board and paper. A general purpose machine.



No. 36 Tandem Cutter

Fairly large capacity. For double or cross-cutting of rags into approximately square pieces of predetermined dimensions.

Let us know your stock cutting needs.

TAYLOR-STILES and Company
CUTTING MACHINES & KNIVES

10 Bridge Street, Riegelsville, N. J.

West VirginiA Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal.

Manufacturers of

English Finish Book
Supercalendered Book
Lithographic Papers

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers, Machine Coated

High Grade Coated Book

•

Kraft Converting and Kraft Envelope
Kraft Liner Board

•

Mills:

Mechanicsville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

SCREENS for PAPER and PULP MILLS

PERFORMANCE of your Centrifugals, Shakers and Driers definitely improved by the use of precision screens built to your specifications. Let us "sit in" on your screening problems.

The Harrington & King PERFORATING Co.

5652 Fillmore St., Chicago 44, Ill.—114 Liberty St., New York 6, N. Y.

WHERE

Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Westinghouse Electric Corporation
Valley Iron Works Co.

DRYER DRAINAGE
Stickle Steam Specialties Co.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
D. J. Murray Mfg. Co.

DYESTUFFS
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuffs Corp.
National Aniline Division, Allied Chemical & Dye Corp.
C. K. Williams & Co.
Witco Chemical Co.

EMBOSSING ROLLS
Gibbs-Brower Company, Inc.
Northern Engraving & Mch. Co.
Roehlen Engraving Works

EMULSIFIERS
Adell Chemical Company
L. Sonneborn Sons, Inc.

EVAPORATORS
Black-Clawson Company
Foster Wheeler Corp.
General American Transportation Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

FABRICATED PIPING
Crane Company

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Merrick Scale Mfg. Co.
Leeds & Northrup
Milton Roy Pumps
Wallace & Tiernan

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co., Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.

FELT CLEANERS
Adell Chemical Company
The Cowles Detergent Company

FELT GUIDES
Moore & White Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Waldron Corp., John

FIBRILATORS
Paper & Ind. Appliances

FILES
Simonds Saw & Steel Co.

FILLERS
A. M. Meincke & Son Inc.
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS
Cochrane Corp.
General American Transportation Corp.
Improved Paper Machy. Corp.
Moore & White Co.
Oliver United Filters, Inc.
J. O. Ross Engrg. Corp.
Witco Chemical Co.

FITTINGS, PIPE
Crane Company
Walworth Company

FLOORING, GRATING & TREADS
Norton Co.
Raybestos-Manhattan Inc, Manhattan Rubber Division
United States Rubber Co.

FLOOR TREATMENTS
L. Sonneborn Sons, Inc.

FORMATION TESTER
Thwing-Albert Instrument Co.

FORMING MACHINES
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters, Inc.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

FRICTION MATERIALS
Johns-Manville Sales Corp.
Raybestos-Manhattan Inc., Manhattan Rubber Division

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

GASKETS
Raybestos-Manhattan Inc., Manhattan Rubber Division

GEARS
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John
Westinghouse Electric Corporation

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Wks.

GRINDING WHEELS
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Norton Company
United States Rubber Co.

HEADS
Lukens Steel Company

HEAT EXCHANGERS
Foster Wheeler Corp.
Stickle Steam Specialties Co.
Westinghouse Electric Corporation

HEAT RECOVERY SYSTEMS
Foster Wheeler Corp.
Stickle Steam Specialties Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

HOISTS
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.

TO BUY

HOSE (Air, Water, Suction, etc.)
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

HUMIDITY CONTROL
Harry W. Dietert Company

HYDRAPULPERS
Dilts Machine Works
Shartle Bros. Machine Co.

IMPREGNANTS
American Anode Div.,
The B. F. Goodrich Chem. Co.
L. Sonneborn Sons, Inc.

INDUSTRIAL ARCHITECTS
The McPherson Company

INDUSTRIAL TRACTORS
Towmotor Corp.

INSTRUMENTS, TESTING AND MEASURING
Ames Company, B. C.
The Barbour Stockwell Co.
Bauer Brothers Co.
N. P. Bowsher
The Bristol Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taylor Instrument Cos.
Thwing-Albert Instrument Co.
Testing Machines, Inc.
Wallace & Tiernan Instrument Co.
Williams Apparatus Co.
Westinghouse Electric Corporation

JOINTS
Perfecting Service Company

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOTTERS
Improved Paper Machy. Corp.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
Dilts Machine Works
W. & L. E. Gurley
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Taylor Instrument Companies
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Valley Iron Works Co.
Williams Apparatus Co.

LAY BOYS
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers Machine Co.

LINTER COTTON
The Railway Supply & Mfg. Co.

LIQUID CHLORINE
Pennsylvania Salt Co.

LITHOPONE
Chemical & Pigment Division,
The Glidden Company

LUBRICANTS
Gulf Oil Corporation
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
L. Sonneborn Sons, Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

MATERIAL HANDLING
Automatic Transportation Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

MOISTURE CONTENT CONTROL
Harry W. Dietert Company
Stickle Steam Specialties Co.
Williams Apparatus Co.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Thwing-Albert Instrument Co.
Westinghouse Electric Corporation

NOZZLES
Link Belt Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div.
of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAINTS
L. Sonneborn Sons, Inc.

PAPER MACHINES
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld, Inc.
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
The Sandy Hill Iron & Brass Wks.
Valley Iron Works Co.

PAPER MILL BUILDERS
The Rust Engrg. Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
South Wabash Engrg. Co.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corp., John

PETROLEUM SULFONATES
L. Sonneborn Sons, Inc.

PENSTOCKS, WELDED STEEL
The Biggs Boiler Works Co.

PEREOMETER
W. & L. E. Gurley

PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.

pH METER
Thwing-Albert Instrument Co.

PIPE
Black-Clawson Company
Crane Company
Grinnell Company
Johns-Manville Sales Corp.
Stowe-Woodward, Inc.
Walworth Company

PIPE FITTINGS
Crane Company

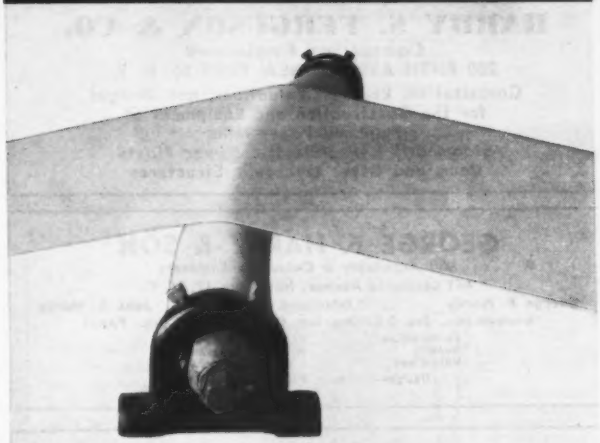
PIPING, FABRICATED
Crane Company

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Black-Clawson Company
J. O. Ross Engrg. Corp.
Lukens Steel Company
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLATE WORK (Steel & Alloy)
The Biggs Boiler Works Co.
Lukenweld, Inc.

ELIMINATE
CREASES AND WRINKLES



With MOUNT HOPE
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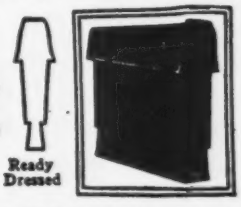

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